Northeast Regional Skills Training Plan

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DISCLAIMER

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Executive Summary

Northeast BC has been booming for over a decade, resulting in growth, low unemployment and high incomes for many people. More major projects are expected, in the oil and gas, mining and clean energy sectors. Nonetheless, there is a disconnect between the needs of major industry for skilled labour and the existing labour pool within the Northeast. Many youth, older workers, and Aboriginal peoples are not participating to the fullest extent possible in the industrial economy. Much more can be done at the local level to train the existing labour pool.[1]

The BC Jobs Plan has led to the creation of Regional Workforce Tables (RWT) to bring people together to discuss how to best align existing regional training to meet local employment opportunities, and to ensure British Columbians have access to training and job opportunities in their home communities. The Northeast RWT is led by a Task Force composed of approximately 12 to 15 key leaders representing a range of communities and organizations in the region. They came together to produce this Regional Skills Training Plan for the Northeast region. Funding provided by the Canadian-British Columbia Labour Market Development Agreement.

The RWT based this Regional Skills Training Plan (the Plan) on data and statistics developed in the summer and fall of 2012. In addition, discussions were held with people throughout the region to obtain their views on training gaps and issues. This Plan summarizes key findings emerging from the research and interviews

Occupational Demand Outlook to 2020
Northeast BC's labour market outlook is tied to the potential expansion of its natural resource based industries, including mining, natural gas and hydro-electric power as well as critical community support services occupations.

To make occupational demand projections, the RWT developed two scenarios. It used BC government labour market information as well as data from specific labour market information that various industry sectors produced. The *Conservative Scenario* indicates a steady growth for employment in Northeast BC with an increase of approximately 6,000 new jobs between 2011 and 2020. The *Expected Scenario* reflects an expected slowdown in natural gas activity because of natural gas prices remaining low until 2015. The scenario then predicts a sharp increase in jobs (over 15,000 added) resulting from Site C dam construction and the resumption of natural gas exploration and production activity and pipeline construction to support the development of the liquefied natural gas (LNG) export industry.

Section 2 provides a list of occupations projected to be in particularly high demand, between 2012 and 2020. Many of these occupations are trades and vocational related. Community service related occupations will also be important to fill, though no specific demand projections are available for them.

[1] Northeast Regional Workforce Table Open House Forum Summary Report, February 10, 2012.

Existing Regional Training and Potential Gaps
The RWT commissioned an Environmental Scan to identify existing regional training, training issues and potential training gaps. Training gaps appear to exist for high demand occupations such as, but not limited to:

- industrial electricians;
- oil and gas drilling, servicing and related labourers;
- oil and gas drilling workers and service operators;
- underground mine service and support workers;
- oil and gas drilling and services supervisors

Challenges and Issues
For certain occupations, no data on training programs was available; future research could provide needed information. Of those gaps that are known, regional training providers face challenges in filling them, including:

- **Training infrastructure** – In 2012, NLC requested capital funding to support expansion and improvements to its trades training facilities. This request was based on the results of recent audits which pointed out the need for short, medium and long-term investments in upgrading or replacement of these facilities. Without this funding, it has limited ability to expand its training capacity.

- **Shortage of trades instructors** – Training providers have difficulties filling positions in some high-demand occupations.

- **Employer reluctance to release apprentices for training** – Some employers are reluctant to release apprentices to attend the four to six weeks of in-school training required for each level of an apprenticeship; the location of the training may pose additional difficulties for them.

- **Other funding priorities** – Regional institutions have some flexibility to re-allocate funding between programs. They make such decisions, however, in consultation with the Industry Training Authority, which must also consider demand and supply changes at the provincial level.

- **Leverage existing relationships, programs, and networks** - Many organizations have already built strong relationships and successful programs for training, including for under-represented groups. Further activities need to build off of this foundation.

- **Agile, sustainable training development and delivery approaches are required –** Demand for skills and occupations changes rapidly in industries in the region. Consequently, training needs to adapt more quickly. Training could be accelerated or condensed training time and use competency based occupational performance standards and assessment.

- **More pre-employment training** – Many potential workers are currently outside of the labour market and require significant skills upgrading before they can compete effectively for jobs.

- **Focused gap training and support to complete training –**Access to upgrading is often limited to regular post-secondary English and Math courses, which cover more topics than may be required and take longer to complete than focused learning modules would. Additionally, apprentices are taking longer to complete apprenticeships because employers are too busy to release them for in-school training.

- **Capacity to develop and grow businesses –** Major projects in the region will provide opportunities for existing businesses to grow and new businesses to develop. Some residents need general business training; existing businesses may need help with procurement and human resource issues.

Summary Goals and Actions
The Regional Workforce Table has developed goals and actions that it believes are realistic and achievable for the NE Regional Skills Training Plan. They are based on the evidence the RWT collected through research activities and discussion with people in the region. A summary of the goals and actions is provided below:

Summary of Goals and Actions

Goal 1: Increase the pool of potential workers for high-demand occupations Purpose: To fill the demand for workers with strong foundational skills that enable individuals to train for high demand occupations and be successful in their career choices	
Action 1.1	Coordinate a comprehensive career pathway and labour market information initiative for regional students, workers and employers
Action 1.2	Build on and expand innovative pilots and initiatives that target underrepresented groups
Action 1.3	Enhance/pilot programs that provide career pathways for under skilled workers in the region
Goal 2: Increase capacity in the region to develop and deliver "agile" training Purpose: To increase the ability of training providers to meet the ongoing needs of individuals and employers in a timely and targeted fashion	
Action 2.1	Enhance/pilot programs for delivering instruction for high demand occupations
Action 2.2	Pilot accelerated training delivery models for regional high demand occupations (accelerated apprenticeship models, etc.)

Goal 3: Enhance skill development for new and growing businesses in Northeast BC	
Purpose: Help existing and new Northeast businesses owners develop skills to grow and effectively manage their operations	
Action 3.1	Support and expand existing initiatives that provide training in business management and entrepreneurship
Action 3.2	Encourage business management and entrepreneurship training with high school and post-secondary students
Action 3.3	Expand training to help local businesses and contractors with procurement and human resources needs
Goal 4: Address any training gaps for high demand occupations	
Purpose: Ensure industry has skilled workers that meet workforce needs	
Action 4.1	Identify potential partnerships with other provincial and/or national training providers in order to provide regional access to training in high demand occupations for which no training is currently available locally.
Action 4.2	Through the Centre of Training Excellence in Oil and Gas pilot an initiative that works to ensure standardized learning outcomes from different training programs which lead to a common designation.
Action 4.3	Work with employers to identify barriers to participation in training programs, develop solutions aimed at reducing or removing those barriers, and solicit their active engagement in training initiatives

This Regional Skills Training Plan is a first step and serves as a framework for the future. Other groups outside the scope of this research have training needs as well, including community service providers. With continued collaboration and engagement on the part of all parties, and especially employers, the Northeast can ensure that as many residents as possible benefit from the opportunities the major projects provide.

TABLE OF CONTENTS

1 > Introduction and Background to the Project 1

2 > Summary Information on Projected Occupational Demand in Northeast BC 3

2.1 Population Characteristics 3

2.2 Education Levels in the Population 4

2.3 Occupational Demand 2012-2020 6

2.4 Job Openings in Key Community Support Service Occupations: 2012-2020 10

3 > Training Supply and Availability in the Northeast Region 12

4 > A Regional Skills Training Plan: Goals and Actions 18

Goal 1: Increase the pool of potential workers for high-demand occupations 18

Goal 2: Increase the capacity in the region to develop and deliver "agile" training. 21

Goal 3: Enhance skill development for new and growing businesses in Northeast BC 23

Goal 4: Address training gaps for high demand occupations 25

Next Steps on Implementing the Goals and Actions 26

5 > Observations and Future Directions 27

6 > Conclusion 29

7 > Appendices 30

Definition of Occupational Categories 31

Principles for the Regional Skills Training Plan 32

List of People Interviewed about the Training Plan 33

Appendix A: Addendum to the Environmental Scan 36

A1 > Introduction 36

A2 > Overview of NE BC Economy and Industries 36

A2.1 Natural Gas Sector 36

A2.2 Mining 37

A2.3 Agriculture 37

A2.4 Clean Energy 37

A2.5 Industrial Construction Industry 38

A2.6 Conclusion 38

A3 > Overview of Northeast British Columbia Population and Labour Force **38**

A3.1 Population 38

A3.2 Education Levels in the Population 41

A3.3 Labour Force 42

A3.4 Employment 42

A3.5 Review of Existing Labour Market Information (LMI) Reports 44

A3.5.1 Construction Looking Forward 2012-2020 Key Highlights British Columbia (released 2012) 45

A3.5.2 British Columbia Hiring Requirements and Available Talent Forecasts Exploration, Mining, and Stone, Sands and Gravel (released September 2012) 47

A3.5.3 Site C Dam and Hydroelectric Generation 47

A3.5.4 BC Solid Wood Sector Labour Market and Training Needs Analysis May 2012 48

A3.5.5 The Decade Ahead: Labour Market Projections and Analysis for Canada's Oil and Gas Industry: 2010-2020 (released March 2011) and Canada's Oil and Gas Labour Market Outlook to 2015 (released May 2012) 49

A3.5.6 Labour Market Information on Recruitment and Retention in Primary Agriculture (released 2009) 50

A3.5.7 Healthcare Labour Market Trends 50

A3.6 Using Detailed BC Labour Market Information from BC Statistics 52

A4 > Occupational Demand in Northeast BC **54**

A4.1 Occupational Demand 2012-2020 55

A4.2 Job Openings in Key Community Support Service Occupations: 2012-2020 60

A5 > Key Considerations for Training Plan **63**

Appendix B: Possible Northeastern BC Mining Projects **64**

B1 > Mining and Exploration Activity in Northeastern British Columbia **64**

B2 > Base Metals, Precious Metals, Industrial Minerals 65

B2.1 Akie and Kechika Regional Projects 65

B2.2 Kemess Underground Project 65

B2.3 Shasta Gold/Silver Project 65

B2.4 Aley Niobium Project 66

B2.5 Nonda Silica Project 66

B3 > Coal 67

B4 > Oil and Gas 69

B5 > Summary 71

B6 > References 73

1 > Introduction and Background to the Project

The best way to predict the future is to invent it.

Alan Kay

Major economic development in Northeastern British Columbia will contribute significantly to overall economic growth in the province over the next two decades. Strong demand from international markets for minerals and liquefied natural gas (LNG) is expected to continue, and sustain a prolonged period of economic growth and construction.

Nonetheless, there is a disconnect between the needs of major industry for skilled labour and the existing labour pool within the Northeast. Many youth, older workers, and Aboriginal peoples are not participating to the fullest extent possible in the industrial economy. Employers are resorting to "flying in" temporary workers from outside the region. While there will likely still be a need for these temporary workers given the sheer number of job openings in the Northeast, much more can be done at the local level to train the existing labour pool.[2]

The BC Jobs Plan has committed to the creation of Regional Workforce Tables (RWT) to bring people together to discuss how to best align existing regional training to meet local employment opportunities, and to ensure British Columbians have access to training and job opportunities within commuting distance from their home communities. The goals of the Regional Workforce Tables are to:

- Outline regional economic opportunities and labour market needs;
- Identify opportunities and make recommendations to align existing training and labour market programs to meet employment opportunities; and
- Continue to ensure that local training programs are aligned with economic demand.

With the support of the Ministries of Jobs, Tourism and Skills Development and Advanced Education, Innovation and Technology, Northern Lights College (NLC) hosted an initial Northeast Regional Workforce Table Open House in Dawson Creek, BC on February 10, 2012. This Open House activity brought together over 80 stakeholders representing industry, government, First Nations, education and community groups from across the Northeast Region. At the request of those assembled, a smaller group of approximately 50 stakeholders were invited to attend subsequent planning meetings to develop a framework and process for the Northeast Regional Workforce Table (NE RWT). Based on subsequent meetings that were held on April 16th and May 11th, 2012, a Terms of Reference and process were proposed for the creation of the NE RWT.

Within the context of that Terms of Reference, a Northeast Regional Workforce Table Task Force (NE RWT TF) comprised of 12 to 15 members was struck and charged with ensuring achievement of a set of broad deliverables between June and November 2012. These included this Regional Skills Training Plan for the Northeast region, which will be provided to regional stakeholders, including government.

[2] Northeast Regional Workforce Table Open House Forum Summary Report, February 10, 2012.

Key components of the research for the Training Plan included:

- Determination of the training and employment needs for the Northeast, and the skills and training required to fill employment demand;
- Coordination with existing training and labour market initiatives and identification of opportunities for building on existing work; and,
- Identification of current training offerings in the region, gaps, and opportunities for more effectively aligning programs with regional needs.

While the key deliverables of the Northeast Regional Workforce Table remain as outlined above and are summarized in the document, the Northeast Regional Workforce Table Task Force has also identified additional issues that have come to light during the research process. These issues are outlined in Section 5 as potentially requiring further study and/or intervention.

The Northeast has well established partnerships and a history of collaboration and cooperation on training issues between training providers and industry. Success stories like the Northern Opportunities "dual credit" programing is an outstanding regional initiative achieved through coordinated efforts which resulted in increased high school graduation rates and entry levels of trades certification. Similarly, the work of the Northeast Native Advancing Society (NENAS) has demonstrated that effective, targeted programming can help underrepresented aboriginal groups gain access to trades and other high demand occupations. The Northern Lights College Centre of Excellence in Oil and Gas stands as a testament to the willingness of regional training providers to work with industry to meet work force needs. This Regional Skills Training Plan, thus, builds upon a strong foundation.

2 > Summary Information on Projected Occupational Demand in Northeast BC

This section summarizes information from background research the RWT sponsored to support the development of the Training Plan. It begins with a brief overview of some basic demographic information on the region. The section then discusses the occupational demand that is expected to result from the major projects that will be undertaken in the Northeast.

2.1 Population Characteristics

Like all of BC's northern regions, the Northeast is sparsely populated, with about 66,000 residents in 2011. Slightly over a third of the population, 36 percent, lives outside of incorporated communities.

Between 2006 and 2011, the population of Northeast BC grew by 1.9 percent to 65,550. That population increase, however, was far behind the province as a whole, which grew by seven percent. The Northeast's population of Aboriginal people is over twice that of BC as a whole while its percentage of immigrants is significantly less. In fact, the region received less than 0.5 percent of BC's immigrant arrivals between 2007 and 2011.

Table 1 – Population Characteristics: BC and Northeast BC

Characteristic	BC	Northeast
Population (2011) (% of Total BC)	4,400,057 100%	65,550 1.5%
Population Growth (2006 – 2011)	7.0%	1.9%
Aboriginal Peoples (% of Population – Census 2006)	4.8%	12.7%
Immigrants (% of Population – Census 2006)	30.5%	7.3%
Immigrant Arrivals: 2007 – 2011 (% of Total BC) (Citizenship and Immigration Canada, Landed Immigrant Database)	100%	0.4%

Source: Census 2011 unless otherwise stated

As the table below shows, the Northeast's population is younger than the provincial average. This statistic is consistent with other regions that have a larger Aboriginal population.

Table 2 - Age Demographics: BC and Northeast BC

Characteristic	BC	Northeast
0-17 yrs.	19%	25%
18 – 24 yrs.	10%	10%
25-64 yrs.	56%	55%
65+ yrs.	15%	9%

Source: Census 2011

2.2 Education Levels in the Population

Analysis of the 2006 data on education levels of Northeast BC (see Table 3 below) also shows that the region has strengths and challenges. As strength, the percentage of the region's population with trades skills (25 per cent) is significantly higher than that of BC as a whole (15.5 percent). The Northeast population, however, has a significant proportion of people with minimal formal education, with 21 percent without high school completion, as compared to 11 percent for the entire provincial population.

Table 3 - Education Level: BC and Northeast BC

Characteristic	BC	Northeast
Population 24 – 54 years *without* High School Complete	11.0%	21.0%
Population 24 – 54 years with Certificate or Diploma	31.5%	36.0%
Population 24 – 54 years with University Degree	24.0%	10.0%
Population 24 – 54 years with Trades Skills	15.5%	25.0%

Source: Census 2006

Northeast BC's labour market outlook is tied to the potential expansion of its natural resource based industries, including mining, natural gas and clean energy. In turn, growth in the natural gas sector depends on the development of liquefied natural gas (LNG) export facilities in Northwest BC. Projects related to the development of LNG are still awaiting regulatory approvals and/or project proponent's final investment decisions (FID).

To accommodate the current uncertainty about which and how many major projects will go ahead, this analysis uses two potential activity scenarios to project a range of employment growth for Northeast BC:

- *Conservative Base Scenario*: based on BC LMI 2010-2020 and has been deemed to be "conservative" as it does not include a number of recently announced major capital projects.
- *Expected Scenario*: developed using sector-specific labour market information reports outlining expected projects including BC natural gas projections in a growth scenario[3] plus BC mining projections in a baseline scenario[4] plus upgraded Site C construction[5] plus solid wood LMI projections[6]

The major capital projects associated with each scenario are outlined in the table below. In order to be included in the BC labour market scenario model used for the *Conservative Base Scenario*, project value has to be equal or above $500 million dollars. No mining projects met this criterion to be included. In the *Expected Scenario*, the projects listed were specifically identified in sector-specific Labour Market Information reports examined to provide background for this analysis. [7]

Table 4 - Major Capital Projects included in Each Scenario

Conservative Base Scenario	Expected Scenario
▪ Cabin Gas Plant ▪ Site C Dam and Hydroelectric Generation	▪ Cabin Gas Plant ▪ Site C Dam and Hydroelectric Generation (2012[8]) ▪ Horn River Pipeline ▪ Coastal GasLink Pipeline ▪ Increased natural gas activity due to development of three LNG projects (Douglas Channel, Kitimat LNG, LNG Canada)

[3] Petroleum HR Council. 2010 and 2011

[4] Mining Industry HR Council. September 2012.

[5] Provided by BC Hydro as of July 2012.

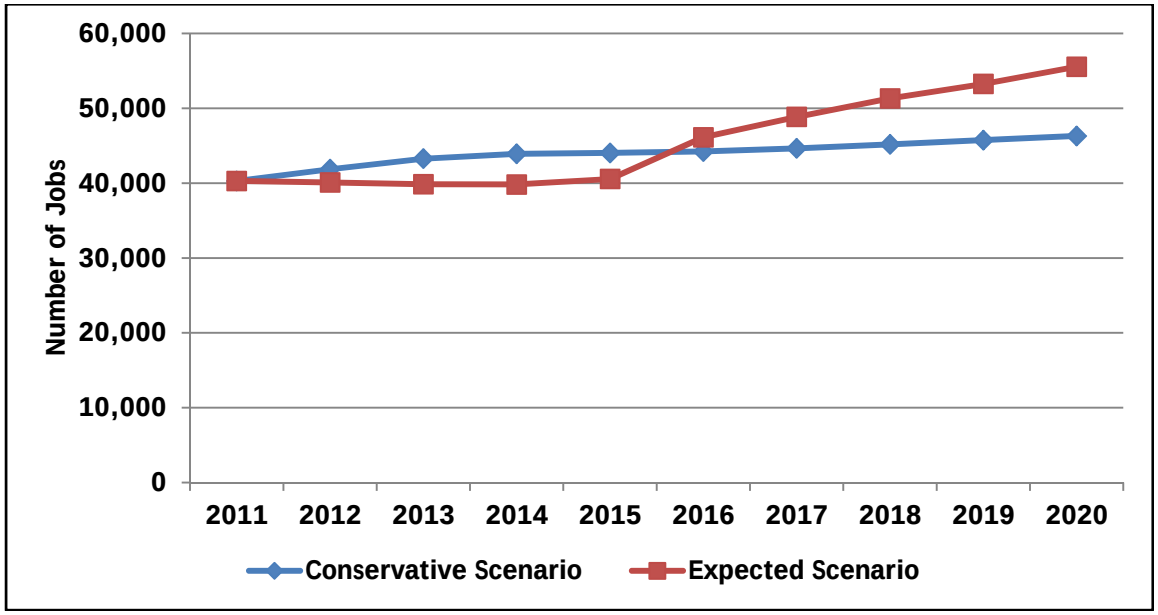
[6] BC Solid Wood Sector Labour Market and Training Needs Analysis. 2012

[7] Since the *British Columbia Hiring Requirements and Available Talent Forecasts Exploration, Mining, and Stone, Sands and Gravel* report did not identify the mines expected to drive labour demand in Northeast BC, specific capital projects could not be named in the scenario.

[8] The data is based on the preliminary workforce assessments undertaken in BC Hydro's 2010 Cost Estimate.

Figure 1 below outlines the projected employment outlook based on the two potential scenarios described above. The Conservative Scenario, which is based on projections developed by the BC LMI modeling system for 2010-2020, indicates a steady growth for employment in Northeast BC with an increase of approximately 6,000 new jobs between 2011 and 2020. The Expected Scenario is based on more recent labour market projections and reflects a slowdown in natural gas activity because of low natural gas prices. In this scenario it is expected that natural gas prices will remain low until 2015. The scenario then predicts a sharp increase in jobs (over 15,000 added) resulting from more recent workforce projections for Site C dam construction and the resumption of natural gas exploration and production activity and pipeline construction to support the development of the liquefied natural gas (LNG) export industry.

Figure 1- Northeast BC Employment Outlook 2011-2020[9]



In either scenario, age-related attrition (or retirements and deaths from the labour force) create job openings and will result in a significant increase in Northeast BC's hiring activity.

2.3 Occupational Demand 2012-2020

Table 5 outlines the occupations in Northeast BC predicted to have the greatest number of job openings due to industry activity and age-related attrition from 2012 to 2020. These occupations are in the natural resources industries that drive the regional economy.

[9] The employment outlook chart illustrated the number of jobs due to industry activity in the region only. The number of job openings refers to the hiring that is required as the result of growth due to industry activity and hiring to fill vacancies due to age-related attrition.

Table 5 - NE BC Occupational Demand

Occupation	Conservative Base Scenario: BC LMI 2010-2020 (# of Job Openings)		Expected: BC Natural Gas + Site C + Mining + Solid Wood LMI (# of Job Openings)
	3-digit estimate	4-digit estimate[10]	4-digit estimate
1. Motor Vehicle and Transit Drivers (741)	**1,145**		
Truck Drivers (7411)		860	860
2. Heavy Equipment Operators (7421)	**555**	555	955
3. Machinery and Transportation Equipment Mechanics (731)	**370**		
Heavy-duty Equipment Mechanics (7312)		155	295
Construction Millwrights and Industrial Mechanics (7311)		165	285
4. Primary Production Labourers (861)	**335**		
Oil and Gas Drilling, Servicing and Related Labourers (8615)		200	750
5. Trades Helpers and Labourers (761)	**305**		
Construction Trades Helpers and Labourers (7611)		290	1,160
6. Carpenters and Cabinetmakers (727)	**295**		
Carpenters (7271)		280	280
7. Contractors and Supervisors, Trades and Related Workers (721)	**275**		325
8. Central Control and Process Operators in Manufacturing and Processing (923)	**265**		
Central Control and Process Operators, Mining and Mineral Processing (9231)		30	30

***** Includes Petroleum, Gas and Chemical Process Operators + Power Engineers

[10] Job openings for occupations at the 4 digit level were estimated using 2010 employment estimates for Northeast BC at the 4 level National Occupational Classification – Stats (NOC-S) as report at www.bcstats.gov.bc.ca/StatisticsBySubject/LabourIncome/OtherData/RegionalEmploymentProjections.aspx. An assumption was made that the employment estimate for the 4-digit NOC-S was similar for the corresponding 4-digit National Occupations Classification (NOC) for each 3-digit NOC included in BC LMI 2010-2020. This allowed an estimation of percentage or ratio of NOC at the 4-digit level for each 3-digit NOC. That same percentage or ratio was then applied to the 3-digit NOC labour demand estimate to estimate 4-digit NOC demand. This approach also assumes that the share of total job openings is the same as the share of employment. For example: in 2010 it is estimated that Heavy-duty Equipment Mechanics (NOC-S: H412) made up 41% of Machinery and Transport Equipment Mechanics (NOC-S: H41) according to BC Stats. Therefore, it is estimated that Heavy-duty Equipment Mechanics (NOC: 7312) will experience 42% of the Machinery and Transport Equipment Mechanics (NOC: 731) job openings projected in BC LMI 2010-2020 or 155 positions.

Occupation	Conservative Base Scenario: BC LMI 2010-2020 (# of Job Openings)		Expected: BC Natural Gas + Site C + Mining + Solid Wood LMI (# of Job Openings)
	3-digit estimate	4-digit estimate[10]	4-digit estimate
Petroleum, Gas and Chemical Process Operators (9232)		220	440*
9. Electrical Trades and Telecommunications Occupations (724)	**240**		
Industrial Electricians (7242)		75	220
Electricians (except Industrial and Power) (7241)		115	115
10. Managers in Construction and Transportation (071)	**230**		
Construction Managers (0711)		140	145
Transportation Managers (0712)		30	30
11. Managers in Primary Production (except agriculture) (0811)	**230**	230	380
12. Metal Forming, Shaping and Erecting Trades (726)	**190**		
Boilermakers (7262)		10	35
Iron Workers (7264)		20	20
Sheet Metal Workers (7261)		25	25
Welders and Related Machine Operators (7265)		140	305
13. Supervisors, Mining and Oil and Gas (822)	**170**		
Supervisors, Mining and Quarry (8221)		50	50
Supervisors, Oil and Gas Drilling and Services (8222)		120	725
14. Plumbers, Pipefitters and Gasfitters (725)	**165**		
Plumbers (7251)		70	70
Steamfitters and Pipefitters (7252)		80	175
Gasfitters (7258)		15	45
15. Chefs and Cooks (624)	**165**		
Chefs (6241)		15	15
Cooks (6242)		150	150
16. Mine Service Workers and Operators in Oil and Gas (841)	**140**		
Underground Mine Service and Support Workers (8411)		30	30
Oil and Gas Drilling Workers and Service Operators (8412)		110	525
17. Technical Occupations in Electronics and Electrical Engineering	**135**		

Occupation	Conservative Base Scenario: BC LMI 2010-2020 (# of Job Openings)		Expected: BC Natural Gas + Site C + Mining + Solid Wood LMI (# of Job Openings)
	3-digit estimate	4-digit estimate[10]	4-digit estimate
(224)			
Industrial Instrumentation Technicians and Mechanics (2243)		35	100
18. Underground Miners, Oil and Gas Drillers and Related Workers (823)	**115**		
Underground Production and Development Miners (8231)		50	50
Oil and Gas Service, Testers and Related Workers (8232)		65	790
19. Supervisors, Processing Occupations (921)	**100**		
Supervisors, Mineral and Metal Processing (9211)		10	10
Supervisors, Petroleum, Gas and Chemical Processing (9212)		40	75
20. Technical Occupations in Physical Science (221)	**55**		
Geological and Mineral Engineering Technologist and Technician (2212)		40	170

***** Includes Petroleum, Gas and Chemical Process Operators + Power Engineers

2.4 Job Openings in Key Community Support Service Occupations: 2012-2020

In addition to occupations that meet the needs of the major projects, several community and support service occupations face hiring challenges related to employment growth and age-related attrition. Many of the occupations are key to regional development; they will help ensure that communities remain attractive to the workers and families that other industries need.

Table 6 outlines the community and support service occupations with greatest job openings between 2012 and 2020.[11]

Table 6 - Community and Support Service Occupations with Greatest Job Openings: 2012-2020

Occupation	Job Openings Due to:		Total
	Employment Growth	Age-related Attrition	
Cleaners (666)	195	335	530
Nurse Supervisors and Registered Nurses (315)	215	235	450
Financial and Insurance Administrative Occupations (123)	150	300	450
Clerical Occupations, General Office Skills (141)	175	265	440
Paralegals, Social Services Workers and Occupations in Education and Religion (421)	230	195	425
Administrative and Regulatory Occupations (122)	140	270	410
Retail Salespersons and Sales Clerks (642)	135	255	390
Secretaries, Recorders and Transcriptionists (124)	120	215	335
Assisting Occupations in Support of Health Services (341)	160	155	315
Other Technical Occupations in Health Care (except Dental) (323)	115	100	215
Automotive Service Technicians (732)	70	140	210
College and Other Vocational Instructors (413)	15	45	60

Source: Extrapolated from BC LMI 2010-2020

[11] No sector-specific LMI is available to project the need for community occupations. Therefore, the occupational projections are based on the *Conservative Scenario,* which is extrapolated from the BC LMI 2010-2020 for the Northeast region.

Summary

While the Northeast region continues to be an economic and revenue generating hub for British Columbia, its population growth and ability to attract migrants from other parts of BC, Canada or other countries lag behind southern regions of the province.

High labour force participation rates and low unemployment rates are indicators of chronic labour shortages. Most analysts expect that the local labour force will continue to fall short of meeting the Northeast's workforce requirements. Immigrants can help fill this gap, and they too will require training.

Looking forward, some local residents may face barriers to obtaining the higher skilled jobs that regional development can offer. A large group of people in their 20s, 30s and 40s are unskilled or underemployed and generally employed on a seasonal or short term basis. If they do have employment, many are in low paying jobs that make it difficult for them to afford training to acquire additional skills or to move to locations where courses are available. A Regional Skills Training Plan must address the needs of these individuals as well.

3 > Training Supply and Availability in the Northeast Region

As part of the background for preparing the Regional Skills Training Plan, the RWT examined training supply and availability in the Northeast region. This section summarizes the highlights from this research. It also discusses its implications for identifying gaps in regional training available for high demand occupations identified in Section 3.

Availability of Regional Training

Between 2012 and 2018, the number of new entrants to the workforce is expected to remain stable. The size of high school graduating classes will stay the same, although a greater proportion of graduates are likely to move onto post-secondary education. To increase labour supply, training providers and industry could build on and enhance initiatives to attract Aboriginal people and women into the trades, where they have been traditionally underrepresented.

As of August 2012, Northeast BC has 19 public and private sector training organizations. Those providing the majority of training include the UA Piping Industry College of BC, an accredited Private Career Training Institutes Agency; ENFORM, a training, certification, and health and safety services arm of the upstream petroleum industry; and Northern Lights College (NLC) the largest provider, with campuses in Chetwynd, Dawson Creek, Fort Nelson, Fort St. John and Tumbler Ridge and an access centre in Hudson's Hope. Given its role in trades training, the increased demand for trades to 2020 will likely have the most impact on NLC.

In August 2012, NLC offered technical and apprenticeship training for 10 of the projected high-demand occupations, including:

- Carpentry – Red Seal Trade Certification
- Camp Cook - Red Seal Trade Certification
- Construction Electrician - Red Seal Trade Certification
- Heavy Duty Equipment Technician - Red Seal Trade Certification
- Industrial Instrumentation Technician - Red Seal Trade Certification
- Millwright - Red Seal Trade Certification
- Welding - Red Seal Trade Certification
- Plumbing (Gasfitter) - Red Seal Trade Certification
- Oil and Gas Field Operators – Industry recognized Certification
- Power Engineering – BC Safety Authority Certification

NLC allocates trades training seats based on an approved annual budget from the provincial government. Seats available in each trade are limited. Demand for trades training is high however; the College has little room to increase the number of students it trains under the present allocation system. In addition, as of August 2012, no local training programs were available for the following occupational groups:

- Contractors and Supervisors, Mining, Oil and Gas
- Mine Service Workers and Operators in Oil and Gas Drilling
- Underground Miners, Oil and Gas Drillers and Related Occupations
- Harvesting, Landscaping and Natural Resources Labourers

NLC has limited capacity to increase the number of students it trains, particularly in the trades. This is due to several factors including:

- **Training infrastructure** – In 2012, NLC requested capital funding to support expansion and improvements to its trades training facilities. This request was based on the results of recent audits which pointed out the need for short, medium and long-term investments in upgrading or replacement of these facilities. Without this funding, it has limited ability to expand its training capacity.

- **Shortage of trades instructors** – In many occupations, individuals can earn much more working in industry than as an instructor. As a result, training providers have difficulties finding instructors for courses for some high-demand occupations.

- **Limited coordination** - Industry will sometimes set up in-house corporate training programs that "compete" with institutional programs if training providers are unable to schedule training when they need it. On other occasions, training providers lack instructors to put on a program. If better communication and coordination existed between industry and the institutions, all might benefit from economies of scale.

- **Internet penetration** - Lack of connectivity and bandwidth in remote locations limits the potential use of technology-based training applications.

- **Difficulty for some employers to release apprentices for training** – According to the ITA (Industry Training Authority of BC) close to three quarters of apprentices in the Northeast have only completed Level 1 in-school training. In many cases employers too busy to release apprentices to attend the four to six weeks of in-school training required for each level of an apprenticeship; the location of the training may further complicate matters.

- **Other funding priorities** - Decisions on funding for trades programs are made at the local and provincial level. Institutions have some flexibility to re-allocate funding between programs during the year in the event demand for a particular program changes. They make such decisions, however, in consultation with the Industry Training Authority, which must also consider demand and supply changes at the provincial level.

Potential Gaps in Regional Training: Trends and Observations
Section 3 includes a table that lists the twenty major occupational classifications that are expected to be in high demand in the Northeast to 2020. The ability of public and private sector training providers in the region to provide training for these occupations will be critical to the success of the major projects. Having access to local training will also allow people in the region to maximize the employment and business benefits these projects offer.

To identify potential training gaps, the RWT examined the potential demand for each of these occupational categories (and sub-categories) in light of the available training capacity in the region. While the data gathered in the limited time available for the research do not allow for an in-depth quantitative analysis, the following trends are apparent:

- **Adequate training supply may be sufficient for some occupations** -The initial analysis showed high demand occupations for which the known training supply appears to potentially meet the anticipated demand for workers identified. These occupations include:
  - heavy equipment mechanics
  - petroleum, gas and chemical process operators
  - electricians (construction)
  - welders
  - plumbers
  - cooks
  - instrumentation technicians.

  It will be important to closely monitor supply and demand numbers to ensure that they stay in balance. This need speaks of the requirement for ongoing collaboration between industry and the training providers and regular updates of labour market forecasts and projections.

- **Demand may exceed supply in some occupations** - For a small group of skilled trades occupations (millwrights and industrial mechanics, carpenters and cabinet makers, and steamfitters-pipefitters) the future demand for workers may exceed the available supply of training. The training gap will have to be filled to maximize the use of locally trained and sourced workers. Since programs exist in the Northeast for these occupations, the gap may be addressed by increasing existing training capacity.

- **Regional training unavailable** - A third group of high demand occupations has been identified for which no training is currently available within the region. These occupations include:
  - industrial electricians,
  - oil and gas drilling, servicing and related labourers,
  - oil and gas drilling workers and service operators;
  - underground mine service and support workers;
  - oil and gas drilling and services supervisors.

The labour market analysis completed by the RWT identified no training providers offering these occupations in the Northeast. Accordingly, the gap that exists can be filled by establishing new programs at regional institutions. (In some cases, the development of new programs has already started. For example, in November 2012, NLC was in discussions with a mining firm to develop training related to underground mining.) For certain occupations, regional training providers might also collaborate and combine their stand-alone courses to create a targeted training program. Students can likely also obtain training elsewhere in the province, especially if the occupation is part of Industry Training Authority (ITA) trade programs.

In order to address these potential gaps, greater certainty is required on the actual numbers of workers that need training. Despite projections, some proposed major projects may be delayed or cancelled entirely. The variability of the regional labour market underscores the need for ongoing communication between training providers and industry.

- **Training Supply Data unavailable**- Finally, for a fourth segment of the high demand occupations, the Task Force has projections on the number of new workers needed to 2020. For these occupations, however, *no data is available on the supply of training in the Northeast*. These occupations include:
  - construction trades helpers and labourers
  - central control and process operators, mining and mineral processing
  - construction managers
  - transportation managers
  - boilermakers
  - iron workers
  - sheet metal workers
  - supervisors, mining and quarry
  - underground production and development miners
  - oil and gas service, testers and related workers
  - supervisors, mineral and metal processing
  - supervisors, petroleum, gas and chemical processing
  - geological and mineral engineering technologist and technician

  If the information is unavailable because there is no regional training available for that occupation, then an undetermined training gap may exist. On the other hand, training for these occupations may already be offered in the Northeast, but may not be included in the current analysis which was limited to available labour market analysis information. Additional research may be required to more comprehensively assess the availability of training and more accurately define any gaps by occupation. Armed with this information, the region can then take required actions to meet any gaps that emerge.

Summary of interviews on training gaps/considerations for the Training Plan

To inform development of the Regional Skills Training Plan interview and discussions were carried out with stakeholders and communities across the region. The purpose of these discussions was to gather additional information on key training gaps and solicit views on issues the Training Plan should consider. Several themes emerged:

- **Supporting a continuous training cycle** – The dynamism of the Northeast is such that companies and organizations will have an ongoing need to train people. Statistically, regional unemployment is almost non-existent. Employers are operating at maximum capacity while simultaneously training employees. As workers with small firms become more skilled and experienced, they often move to larger companies and/or different locales. Consequently, employers are continually recruiting new staff. They are often forced to choose new hires with no prior related job experience or in many cases, no work experience at all. Employers need help to build and maintain their capacity to train as well as operate and grow their businesses.[12]

- **Leverage existing relationships, programs, and networks** - Many organizations have already built strong relationships and successful programs for training Aboriginal people and others. Further activities need to build off of this foundation. A map that shows regional needs and the services/programs available would be helpful, especially for identifying program gaps.

- **Agile, sustainable training development and delivery approaches are required –** Demand for skills and occupations changes rapidly in industries in the region. Consequently, training needs to be faster. Training providers need to develop programs around gaps, and deliver training in short, intensive formats using technology to bridge geography. They could use competency based occupational performance standards and assessment to quickly determine an individual's skills and training needs. Companies can then use these standards as a basis for hiring and training across occupations.

- **More pre-employment training** – Many potential workers from the region are currently outside of the labour market. Some, though not all, require significant basic education upgrading, employment readiness, and essential skills training. Innovative interventions are critical with this group since many have had negative experiences with the traditional education system. With direct, individual and targeted assistance, they will likely have more success in transitioning to occupational training or directly to employment. Funding for this type of upgrading can be insufficient and hard to access.

[12] Some groups have found success in providing financial incentives to employers for taking on "trainees" and so lower their risk. Their experiences have been so positive that in many cases employers have returned the incentive money so that that the training organization can place other trainees.

- **Focused gap training and support to complete training –** Individuals who need academic skills upgrading to enter occupational programs often only require upgrading in specific areas, such as reading and writing for business communication, or math for trades. Currently students can upgrade only through regular post-secondary English and Math courses, which cover more topics than they may need and take longer to complete. Individuals often have to wait for a seat in the regular academic programs at colleges, which delays their entry into occupational training such as apprenticeships. Additionally, apprentices are taking longer to complete apprenticeships because employers are too busy to release them for in-school training.

- **Funding and administrative requirements** – In the view of some training providers, many upgrading, employment readiness and up-skilling programs are funded through government contracts with overly restrictive eligibility criteria and short delivery and shelf lives. Successful programs often disappear after two to three years, just when employers have become familiar with them and have started to see their benefits. Additionally, the funders change eligible costs (e.g., meal per diems, honorariums for Elders) necessitating adjustments to key success features. The funding landscape is also complex; multiple organizations fund and administer programs, creating management challenges for the recipient organizations.

- **More than trades training is needed** – Many businesses in the local economy need employees in occupations like day care workers, educational assistants and food services wait staff. In many cases, competencies for these occupations are ill-defined or have no standards, making it difficult to determine if available training is sufficient and to develop flexible programs to address gaps.

- **Capacity to develop and grow businesses –** Major projects in the region will provide opportunities for existing businesses to grow and new businesses to develop. Some residents lack the skills to fully benefit from this economic expansion; others already in business need help with procurement and human resource issues.

- **Recognize success** – Many people in the Northeast are working at capacity to support training while working at other jobs. They produce highly effective results with little recognition. Acknowledging and celebrating their success would help maintain enthusiasm and momentum for training activities.

4 > A Regional Skills Training Plan: Goals and Actions

If you want to leave your footprints on the sands of time, be sure you're wearing work boots.

Author Unknown

This section outlines specific goals and actions that the NE RWT believes are realistic and achievable. They are based on the evidence the RWT collected through research activities described in the previous sections of this document. The goals and actions are outlined for the short-(one year), medium-(three year) and long-term (five years). Some initiatives may start in the short term, and then carry on over the five year life of the Plan.

In developing the goals and their related actions, the Task Force worked from a set of underlying principles. In this way, they could help ensure that recommendations and implementation activities occur within a consistent philosophical framework. These principles are outlined in the Appendices. The Appendices also include a graphic representation of the major goals.

Goal 1: Increase the pool of potential workers for high-demand occupations

Purpose: To fill the demand for workers with strong foundational skills that enable individuals to train for high demand occupations and be successful in their career choices.

This goal and its actions are to help address the shortage of workers in the region, particularly for high-demand occupations. They deal with issues raised in interviews and in the labour market demand analysis and support the objective of the NE RWT to best align regional training with local employment opportunities. In particular, they focus on helping underrepresented groups enter the workforce.

Action 1.1	Coordinate a comprehensive career pathway and labour market information initiative for regional students, workers and employers
Details	Ensuring that people in the region have access to accurate and timely labour market information is critical. Among the key areas of information required are job readiness, occupational awareness, working conditions, career pathways and background on apprenticeship and operator training programs, as well as training available for other high-demand occupations identified in this Training Plan. It could provide labour market related information on apprenticeship programs and procurement opportunities with major projects. The information provided could target a range of key groups in the region, including small businesses. For example, regional districts in Alberta have developed region-wide programs to offer students and workers information on high-demand occupations available in their region and the career pathways to obtain them. These coordinated, extensive initiatives include industry speakers at community forums, websites, posters, social media campaigns and other communication tools. In Northeast BC, a similar approach could be explored, whereby for example training providers would highlight course and program offerings relative to in-demand occupations in existing course catalogues/publications/websites. Additional information on similar initiatives underway in other jurisdictions (for example, in Fort McMurray) could be gathered to support implementation of this action
Potential Partners	Education/training providers[13], Industry[14], government[15], Economic Development Commissions, Chambers of Commerce, NENAS, Aboriginal Organizations, Work BC Employment Service Centres, social service agencies, Northern Opportunities, Community Futures
Timeframe	Short term and over the next five years

[13] Education/training providers are defined as public and private organizations that offer workplace related training.

[14] Industry is defined as employers and, where applicable, unions.

[15] Government refers to all levels of government that potentially have regulatory jurisdiction over or funding for actions. In some cases, the RWT lists a particular Ministry.

Action 1.2	Build-on and expand successful pilots and initiatives targeting underrepresented groups, specifically Aboriginal people, immigrants and women.
Details	The NE Region has already implemented many programs that seek to bring more people from underrepresented groups into the labour force. Examples include Mothers to Miners, Women in Trades Training, North East Aboriginal Trades Training (NEATT), Northern Aboriginal Training to Employment (NATEP), and the STEP program for immigrants. The actions here are to expand these initiatives and also introduce initiatives to the NE region that have had success elsewhere.
Action 1.2a	**Aboriginal people** NENAS and Métis Nation BC have identified difficulties with ensuring continued funding for programs that help integrate Aboriginal people in high demand occupations. Moving forward, avenues for improvement could include identifying: • Key success factors in the programs • Barriers to success • Opportunities for improvement to build a better integrated program Then, specific partners (industry and training providers together could collaborate with the appropriate funding organization(s) for resolution. In addition, strategies are required to: 1) increase Aboriginal participation in semi-skilled occupations, such as rig technicians, line locators, truck drivers, Heavy Equipment Operators, and battery operators; 2) increase Aboriginal completion of apprenticeships, working with the ITA and others; and 3)Aboriginal Organizations if at all possible always be included in funding partnerships and development of programming or appropriate curriculum to help eliminate duplication of services and enhance the development of culturally appropriate curriculum.
Action 1.2b	**Immigrants** An implementation group could partner with organizations like the Immigrant Employer Council and others to support the integration of immigrants into the NE workforce.
Action 1.2c	**Women** In addition to Mothers to Miners, explore participating in the ITA's Women in Trades Training (WITT) initiative. The initiative connects women of diverse backgrounds to trades opportunities through partnerships with service providers, unions and industry associations. Existing service providers like Tradeworks (that offers the Women's Workshop, a 10-week pre-employment program that introduces women to the world of carpentry and the skilled trades) could provide additional ideas on best practices for consideration in the Northeast region.
Potential Partners	Northern Opportunities, NENAS, Aboriginal organizations, industry, Work BC Employment Service Centres, immigrant serving agencies, women's groups, education/training providers, social service agencies, BC Safety Authority, Aboriginal Affairs and Northern Development Canada, Human Resources and Skills Development Canada, BC Ministry of Advanced Education, Economic Development Commissions
Timeframe	Medium term

Action 1.3	Enhance/pilot programs that discuss career pathways for under skilled workers in the region
Details	Some under-skilled workers in the region have jobs, but many of these are low-skilled and low paid. It is difficult for them to acquire training to move to other occupations. However, some programming designed to address these challenges does exist, and these programs could potentially be expanded to further support under skilled workers in the Northeast. For example, the Targeted Skills Shortage Pilot Program (TSS) focuses on assisting low-skilled workers within businesses with less than 100 employees. Funds are available to pay for tuition fees and purchase training services and study materials. This program has been highly effective in the Northeast but there remains a significant group of workers who do not qualify for this initiative. The region will work with partners to explore opportunities to expand and adapt successful programs such as the TSSP Program to better meet the needs of more Northeast workers.
Potential Partners	Education/training providers, industry, governments, Work BC Employment Service Centres, NENAS, Aboriginal organizations
Timeframe	Medium term

Goal 2: Increase the capacity in the region to develop and deliver "agile" training.

Purpose: To increase the ability of training providers to meet the ongoing needs of individuals and employers in a timely and targeted fashion

This goal is intended to address persistent issues that may prevent people from beginning training and then completing it. These include:

- Lack of availability of instructors and training seats
- Concerns that employers are too busy to release apprentices for training
- Developing alternative ways/facilities for providing training that make it easier for employers to release apprentices (on site, e-learning and so forth)

Action 2.1	Enhance/pilot programs for delivering instruction for high demand occupations
Details	Training providers face challenges securing instructors for high demand trades. However, innovative approaches to meeting the demand for instructors have been tested. For example, NLC benefited from having an instructor seconded from industry teach a course in a high demand occupation. Training providers could explore opportunities to expand on this initiative and research other possibilities for meeting the demand for instruction. Other approaches to explore could include developing training plans for mentors, that lay out the process of being a mentor and the instructional competencies the role requires.
Potential Partners	Education/training providers, industry
Timeframe	Medium term

Action 2.2	Pilot accelerated training delivery models for regional high demand occupations (accelerated apprenticeship models, etc.)
Details	Training providers in the region could also examine ways, specific to the Northeast that could accelerate the training offered for high demand occupations. For example, NLC and other training providers could facilitate pre-apprenticeship training, (e.g., safety training courses in high schools, WHMIS) and workplace essentials skills training. A project could explore the possibility of dual certification programs (e.g., Pipefitter and Millwright). A research project could be undertaken to evaluate work completed in other parts of Canada that have developed core competency models and assess their applicability to the Northeast. In addition, Thompson Rivers and other institutions have developed Prior Leaning Assessment models that training providers could adapt and use.
Potential Partners	Education/training providers, industry, NENAS, Aboriginal organizations, Work BC Employment Service Centres, Industry Training Authority (ITA)
Timeframe	Medium term

Goal 3: Enhance skill development for new and growing businesses in Northeast BC

Purpose: Help existing and new Northeast business owners develop skills to grow and effectively manage their operations to take advantage of the business opportunities the major projects offer

The major projects in the region will create many potential business opportunities for supply and service firms. For example, companies will need contractors for constructing buildings and roads, and suppliers for food, financial, and transportation products and services. Their requirements create opportunities for existing business to grow and for entrepreneurs to develop new businesses. The purpose of this goal is to enable individuals in the Northeast to access training for skills and other supports they need and to encourage young people to consider a business career.

Action 3.1	Support and expand existing initiatives that provide training in business management and entrepreneurship
Details	Organizations in the Northeast and elsewhere have developed programs that offer business training and support for entrepreneurs. These programs are often customized and tailored to the recipient groups, such as Aboriginal people. Opportunities to support and expand these programs should be pursued, including developing an inventory of existing initiatives.
Potential Partners	Education/training providers, industry, economic development organizations, NENAS, Aboriginal organizations, Community Futures, Chambers of Commerce. Sci-Tech North, Aboriginal Business Centre, ENFORM, Chi 'nook program at the University of British Columbia
Timeframe	Short Term

Action 3.2	Encourage business management and entrepreneurship with high school and post-secondary students
Details	Explore opportunities to foster business management and entrepreneurial skills among students including: • Incorporate business management and entrepreneurial topics into high school and post-secondary institutions' curricula where appropriate, including in trades training courses. • Identify ways to support regional entrepreneurial skills development, for example through industry sponsorship of competitions to develop business plans, marketing plans, new products or services and so forth that are related to economic development in the Northeast. • Create an inventory of provincial and national organizations that have program offerings that foster entrepreneurship and could be expanded in the Northeast
Potential Partners	Education/training providers, industry, Northern Opportunities, provincial and national business organizations, Community Futures, Chambers of Commerce
Timeframe	Medium term

Action 3.3	Expand training to help local businesses and contractors with procurement and human resources needs
Details	Many businesses need help in understanding procurements rules and procedures related to bidding on major projects. As they grow, they may also require assistance with recruiting and retaining workers, setting up appropriate human resource systems, safety training and related matters. For example, the Northern Development Initiative Trust has developed a one-day contractor-supplier boot camp for the Northwest Region. It helps small businesses get prepared and work to place their firms on the preferred local supplier lists of major companies. Education/Training providers could work with industry and business and economic development organizations to enhance current offerings and develop targeted training programs, workshops and information.
Potential Partners	Economic development organizations, industry, education/training providers, Community Futures, Chambers of Commerce, ENFORM, Northern Development Initiative Trust
Timeframe	Short term

Goal 4: Address training gaps for high demand occupations

Purpose: Ensure regional industry has skilled workers that meet workforce needs

Training is unavailable in the Northeast region for some high-demand occupations. Training providers may need to find ways to make these programs available in the region. This goal and associated actions are intended to find innovative and cost-effective ways to fill training gaps. Coordination, communication and systems thinking will be essential to achieve this goal.

The actions below are the first steps in the development of an overall strategy to fill the gaps. As discussed earlier in this document, further research on gaps in training for specific occupations needs to be undertaken, so that a more comprehensive list is available.

Action 4.1	Identify programs that could be used to support training for high-demand occupations in the Northeast
Details	In planning to fill training gaps lessons learned in the development of the Centre of Excellence for Oil and Gas where training programs and infrastructure were built can be leveraged. Identify programs available outside the region and establish partnerships to bring these programs to the Northeast, to fill training gaps. Work with existing groups to collaborate to transfer successful training programs developed for one industry or group to another.
Potential Partners	Education/training providers, industry, ITA, Ministry of Advanced Education
Timeframe	Medium

Action 4.2	Pilot an initiative that works to ensure standardized learning outcomes from different training programs
Details	In many non-apprentice trades and other occupations, no formal occupational standards exist to ensure consistency of training program content. A group of training providers would explore, on a pilot basis, training programs for one or two of these occupations to find ways to achieve standardized learning outcomes. Examples of potential programs to pilot include oil field supervisors and drilling rig technicians. With standard outcomes, training providers could help provide consistency and continuity for occupations for which there is no governing body.
Potential Partners	Training providers, industry, Northern Opportunities
Timeframe	Medium term

Action 4.3	Remove barriers and solicit active engagement of employers in training
Details	As identified during the research for this Plan, apprentices can have a hard time securing an apprenticeship and then completing it. Other programs may have difficulties obtaining placements for co-op students or trainees. Undertaking research on barriers to employer involvement in apprenticeship and training programs in general is a first step in addressing these challenges. Working with employers to address some of the barriers.
Potential Partners	Education/training providers, industry
Timeframe	Medium term

Next Steps on Implementing the Goals and Actions

Collaboration and partnerships will be critical to support implementation of the identified goals and actions. In order to ensure that implementation is supported, Regional Task Force members have identified their interest in collaborating on many of the Plan's goals and actions. Table 7 outlines these initial commitments. As part of the implementation process, the participants will invite and encourage other organizations to become involved.

Table 7 – Training plan goals and initial implementation participants

TRAINING PLAN GOAL	IMPLEMENTATION PARTICIPANTS
Goal 1: Increase the pool of potential workers for high-demand occupations	NLC to take lead (BC Centre of Training Excellence for Oil and Gas), Employment Connections - Work BC Employment Services Centre, NENAS, Northern Opportunities
Goal 2: Increase capacity in the region to develop and deliver "agile" training	NLC, NENAS, Northern Opportunities, BC Hydro, Industry
Goal 3: Enhance skill development for new and growing businesses in Northeast BC	Community Futures, NLC, North Peace Economic Development Commission, JTST (Northeast Region), Spectra, Chambers of Commerce
Goal 4: Address any training gaps for high-demand occupations	NLC to take lead, NENAS, Northern Opportunities

5 > Observations and Future Directions

They always say time changes things, but you actually have to change them yourself.

Andy Warhol

Below, the NE RWT offers some observations based on its experience developing the Regional Skills Training Plan.

- The needs of communities, industry, and employers must be paramount in implementing the Regional Skills Training Plan. Companies will fund and support activities, programs and ideas that provide them with a return on investment and that will improve their profitability. At the same time, to maintain their social license to operate in a region, companies need to consider the needs and aspirations of the communities in which they are located.
- Key to the success of this Training Plan is the commitment and engagement of all groups, but especially employers. Without their support and involvement, training programs could miss the mark, impeding business success and potentially creating the need for costly in-house remedial programs. Employers and training providers in the Northeast must continue to strengthen the collaborative relationships they have already established.
- A great value in multi-party task forces is that they allow for sharing of information about programs already in existence and allow groups considering new initiatives to build on best practices.
- Many occupations outside the trades have no common standards for training. Unless common standards are developed, workers enter the labour force with different skill sets. Employers then must determine if the worker has the capabilities required for the job. The lack of clear or common standards may lead to higher turnover due to unclear expectations on the part of the graduates or employers. It may make more sense to come together to develop standards for regional occupations.
- At present, training providers bear much of the risk of training development. They must quickly develop and deliver programs for which the demand may change, depending on events that affect the major projects. Change is so rapid that planning for sustainable programs becomes difficult; in the space of a year or two, one plant may close on short notice while others, requiring workers with different skills, open. Training providers may wish to mitigate their risk by undertaking more training on a contract basis, for industry identified, defined needs for specific occupational groups (for example, training for finance people, engineering technologists, engineers and so forth).
- While the Training Plan focuses largely on trades and labouring occupations, the region must also consider the needs of professionals, such as engineers, engineering technologists, and finance, project managers, and environment, health and safety officers. Training providers will need to identify courses and programs to support their ability to further professional careers in the Northeast, and so help industry recruit and retain them.

- Immigrants will likely be another group with training needs. To meet the demand for labour, companies in the region will likely be participating in international recruitment missions and using the Federal Skilled Workers program for immigrants. Many newcomers may require specialized language training and courses on adapting to workplace culture, among others. Settlement workers in local schools will also need training, as will those in other immigrant serving occupations.

- Community service occupations, again, outside of the scope of this Training Plan, will be in demand and require training programs. A steady supply of good teachers, health care, social workers and others will enable the Northeast to maintain the attractive communities that entice people north in the first place and persuade them to stay. Even longtime residents may consider moving if community services deteriorate or become unavailable. While it may be impractical for regional training providers to offer an entire program for some occupations, they may be able to provide foundational courses or pre-requisites. In this way, students from the Northeast may only leave the region for shorter periods of time and perhaps be more open to returning home to pursue their career.

- The availability of transportation to get people to the training site is important. The challenges that the Graduated Licensing Program poses to residents and employers should be examined and assessed, to see if the Program could be better adapted to the needs of Northern communities.

- Having a skilled occupation or profession opens a world of possibilities for a person. Families, industry and training providers must continually remind people, especially children and youth, of the importance of completing high school and carrying on with needed training and education.

- Successful implementation of the Regional Skills Training Plan must be considered in the context of the overall economic development of a region.

6 > Conclusion

Don't wait. The time will never be just right.

Napoleon Hill

Through the efforts and leadership of many people, the Northeast has created a solid record of collaboration and cooperation on training issues. This Training Plan, and the process which took place to develop it, has built upon this success.

It is important to remember that many people in the workforce of 2012 will be retiring in the next 15 to 20 years. The infants in the Northeast will be taking their places; the teenagers in high school in 2012 will be their supervisors. Planning for regional needs has begun and must continue. As elaborated throughout this Plan and in its supporting materials, thousands more well-paying, interesting jobs are coming to Northeast BC and the region must be prepared.

The RWT believes that the Training Plan is an excellent situation analysis, which will help align existing training programs in the Northeast to meet employment opportunities and enable training providers to find ways to fill gaps. The goals and actions outlined with the Plan, however, are a start; others can and will be developed in the years ahead as circumstances change and new workforce needs are identified.

The Regional Workforce Table has been a helpful addition to the process of building relationships and the research it has conducted will benefit many groups. The next challenge is to make certain that the organizations in the Northeast and elsewhere act to implement the Plan's recommendations. Regional organizations that have been involved in the Plan's development must continue to build momentum and encourage others to work with them. They must be willing to look for funding for training, try new approaches, monitor, evaluate and then start all over again. They need to communicate with government, industry and the community at large and be willing to adapt and learn.

The years to 2020 will have their share of training challenges and opportunities. Implemented with enthusiasm and good leadership this Training Plan provides a framework for the future. Using it, the Northeast can consider training issues and develop ways to ensure that economic growth in the region translates into better jobs and ultimately better lives, for many people. Training in the north to stay in the north.

7 > Appendices

- Definition of Occupational Categories
- Principles for the Regional Skills Training Plan
- List of People Interviewed about the Training Plan
- Draft Training Plan Model For Northeast BC
- Appendix A: Addendum to Environmental Scan
- Appendix B: Possible Northeastern BC Mining Projects

Definition of Occupational Categories

Source:
www.hrsdc.gc.ca/eng/labour/equality/employment_equity/tools/eedr/2006/data_reports/page20.shtml

Trades:
Manual workers of a high skill level, having a thorough and comprehensive knowledge of the processes involved in their work. They are frequently journeymen and journeywomen who have received an extensive period of training.

Technologists and Technicians:
Workers in these occupations have to possess knowledge equivalent to about two years of post-secondary education, offered in many technical institutions and community colleges, and often have further specialized on-the-job training. They may have highly developed technical and/or artistic skills.

Truck Drivers:
Transport truck drivers operate heavy trucks to transport goods and materials over urban, interurban, provincial and international routes. They are employed by transportation, well completion service providers such as fracking crews, manufacturing, distribution and moving companies, and trucking employment service agencies, or they may be self-employed. This unit group also includes drivers of special purpose trucks and shunters who move trailers to and from loading docks within trucking yards or lots.

Heavy Equipment Operators:
Heavy equipment operators operate heavy equipment used in the construction and maintenance of roads, well pads, bridges, airports, gas and oil pipelines, tunnels, buildings and other structures; in surface mining and quarrying activities; and in material handling work. They are employed by construction companies, heavy equipment contractors, public works departments and pipeline, logging, cargo-handling and other companies.

Semi-skilled Workers:
Manual workers who perform duties that usually require a few months of specific vocational on-the-job training. Generally, these are workers whose skill level is less than that of skilled crafts and trades workers, but greater than that of elementary manual workers.

Labourers:
Workers in blue collar jobs which generally require only a few days or no on-the-job training or a short demonstration. The duties are manual, elementary, and require little or no independent judgment.

Managers and Supervisors:
Middle and other managers receive instructions from senior managers and administer the organization's policy and operations through subordinate managers or supervisors. Senior managers and middle and other managers comprise all managers.

Supervisors are non-management first-line coordinators of white-collar (administrative, clerical, sales, and service) workers. Supervisors may, but do not usually, perform any of the duties of the employees under their supervision.

Principles for the Regional Skills Training Plan

It is said by our elders that each individual has a voice inside. This voice speaks to you, guides your behaviour, gives you inspiration and even laughs at you from time to time.

Steven L. Point, Xwe li qwel tel, Sto:lo, Past Ltn. Governor of British Columbia

Developing principles to underlie the Regional Training Plan ensures that its recommendations and implementation activities occur within a consistent philosophical framework. The following principles will be used to guide decisions, actions and investments related to implementing the Training Plan:

Principle 1: Regional approach that respects community needs.
The Training Plan supports a regional approach to addressing the training and development needs of the regional workforce. Within that regional context the Training Plan encourages local delivery of those solutions to the greatest extent possible.

Principle 2: Build on existing activities and knowledge
The Training Plan compliments, supports and builds upon the existing strong foundation of industry/training provider partnerships that already exist in the Northeast region. It integrates the experience and knowledge gained from successful activities and programs already in use in the Northeast and other regions.

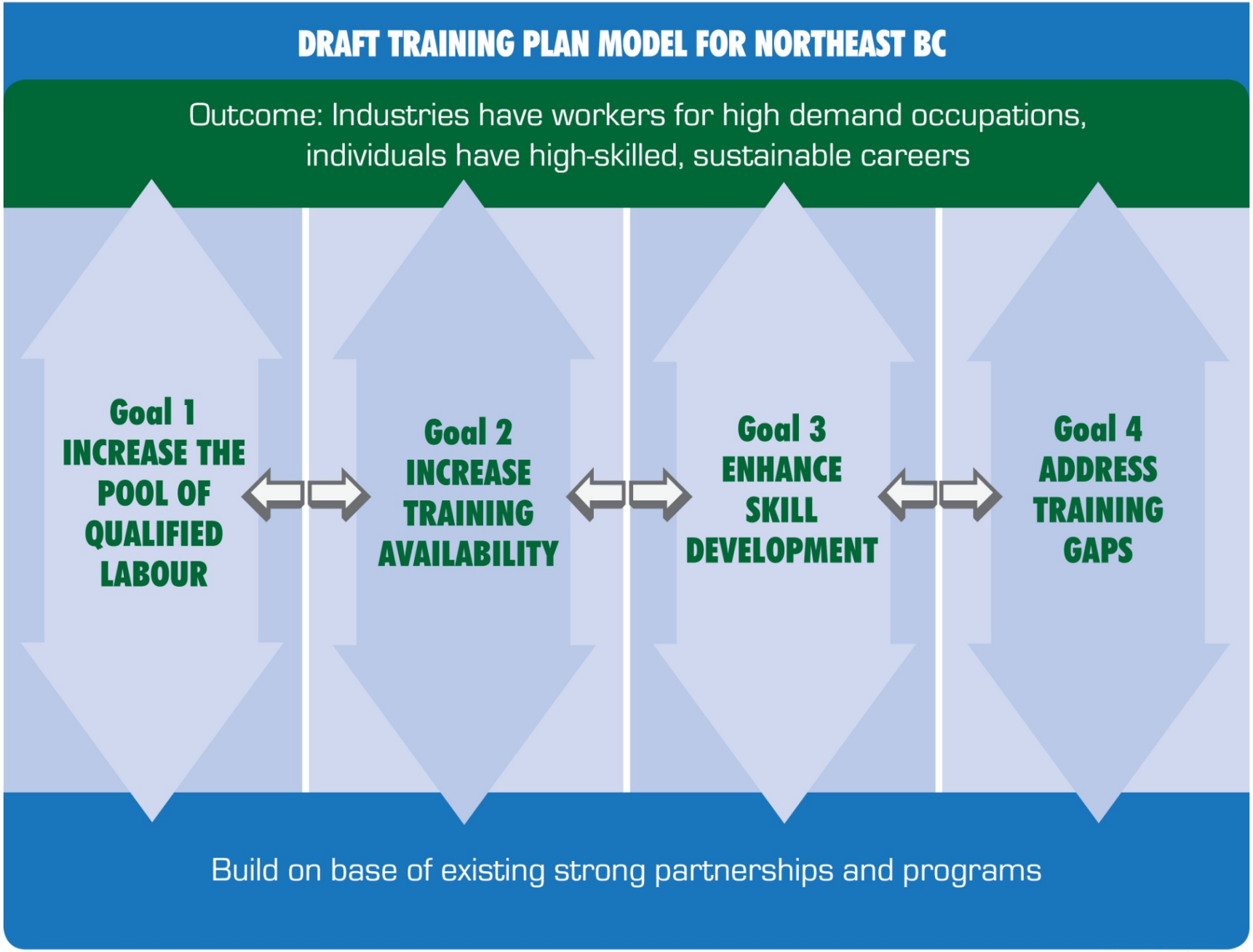
Principle 3: Be efficient and effective with scarce resources
The Training Plan seeks to maximize the use of resources (people, facilities, equipment, and tools, funding) by minimizing redundancies, eliminating unproductive competition for resources and developing cooperative approaches to investing in education and training. The Plan also, where possible, incorporates knowledge of current best practices to increase education and training efficacy.

Principle 4: Create a flexible labour force with a solid base of essential skills
Strong literacy, technological literacy and numeracy skills are the foundation for success in today's workplace and will become even more important in the future. The Training Plan encourages the development of these skills, particularly for under-represented groups in the workforce.

List of People Interviewed about the Training Plan

Organization	Name
Ch'nook, Sauder School of Business	Rick Colbourne
Community Futures	Sue Kenny
Métis Nation BC	Colleen Hodgson Linda Dufresne
NENAS – North East Native Advancing Society	Deanne McLeod Audrey Sam Cheryl Testawitch
Northern Rockies Regional Municipality	Laurie Dolan
School District 60	Doug Boyd Brian Campbell
Spectra Energy BC Chamber of Commerce	John Turner
Cardero Resource Corporation	Angus Christie
Spectra Energy	Carmen Dueck
Talisman Energy	Jerry Lemmon
Encana Corporation	Richard Dunn
Patch Point	Craig Brooks
BV Land Consulting	Brian Vermulen
Focus	Graham McCoubrey
WL Construction	Bruce Reid
North Peace Economic Development Commission	Sandra Lemmon
MLA Peace River North	Pat Pimm
District of Hudson's Hope	John Locher
District of Tumbler Ridge	Barry Elliot
City of Dawson Creek	Mike Bernier
Creative Links Inc.	Pat Hufnagel-Smith
Ministry of Jobs, Tourism and Skills Training	Yu Li
Teck Resources Ltd	Jason Smith
Mining Association of BC	Angela Waterman Zoe Younger

BC Construction Association	Abigail Fulton Rosalyn Thorn
Globe Group	Paul Shorthouse Stephen Wu
Construction Labour Relations Association of BC	Clyde Scollan
Northern Lights College	Laurie Rancourt Pam Eales Steve Roe Kristina Van De Walle
UA Piping Industry College of BC	Robin Guidon Barry Donaldson
ENFORM – FSJ	Rick Newlove Lucie Brain
BC Transport Training and Consulting	Kevin Black
UNBC	Dennis Macknak
Industry Training Authority	Leanne Tan
Work BC Employment Service Centre – Employment Connections – FSJ	Jeannette Karasiuk
School District 59 Peace River South	Frances Armstrong
Job Search & Support Services Dawson Creek Catholic Social Services Society	Darlene Rose


DRAFT TRAINING PLAN MODEL FOR NORTHEAST BC
Outcome: Industries have workers for high demand occupations, individuals have high-skilled, sustainable careers
Goal 1 INCREASE THE POOL OF QUALIFIED LABOUR
Goal 2 INCREASE TRAINING AVAILABILITY
Goal 3 ENHANCE SKILL DEVELOPMENT
Goal 4 ADDRESS TRAINING GAPS
Build on base of existing strong partnerships and programs
© Ingenia Consulting 2012

Appendix A: Addendum to the Environmental Scan

A1 > Introduction

The Northeast Regional Workforce Table is examining various issues related to training needs and gaps in Northeast British Columbia. This document supplements an environmental scan that the Task Force previously commissioned. Specifically, it provides:

- Available information on occupations using four digit NOC codes where available
- Additional occupational demand data from the solid wood, agriculture and health sectors, where available.

A2 > Overview of NE BC Economy and Industries

This section provides an overview of the key components of Northeast BC's economic activity.

A2.1 Natural Gas Sector

The Northeast region is British Columbia's current hub for natural gas exploration, development and processing activity. Companies in the region have pioneered the use of new technologies to unlock shale gas. The widespread success of horizontal drilling and hydraulic fracturing techniques in the basins in the region (Liard, Horn River, Cordova Embayment and Montney) has attracted domestic and foreign investment. In recent years, gas production has increased, but demand from the United States has decreased, resulting in a sharp drop in the price for natural gas. This lower price has been a key driver in the proposed development of a liquefied natural gas (LNG) export sector in British Columbia, as companies seek higher prices for natural gas in Asian markets.

In gas processing, companies have built two new gas plants in the region – one recently commissioned and one still under construction – north of Fort Nelson to accommodate production increases that will be required to address demand from LNG. In 2012, construction was completed for a new plant in Dawson Creek to address the increased production of liquids-rich gas in the Montney Basin.

Activity is likely to remain slower for the next few years until greater certainty exists for higher natural gas prices. Demand from new customers in industry, the transportation sector and global markets through the development of an LNG export capacity in BC will drive this increase. Activity levels are more elevated in the Montney Basin around Dawson Creek as the natural gas contains other liquids and is worth not only the price of natural gas but also the price of the liquids, making it more profitable – even in a low natural gas price environment.

With increased capital investment in the natural gas industry and mining activity, the Northeast region has experienced chronic labour shortages for certain occupations for some years. Northeast BC consistently records the province's lowest unemployment rate (3.9 percent in May 2012) and has the highest average annual income. Employers have increased the use of fly-in/fly-out work arrangements to bring in workers from other parts of BC and Canada to meet labour demand.

A2.2 Mining

In 2011, Northeast BC had four producing, open-pit coal mines including:[16]

- Trend Mine and Perry Creek Mine (both located near Tumbler Ridge)
- Brule Mine and Willow Creek (both located near Chetwynd)

Demand for workers from the mining sector also has contributed to the low unemployment rate in the Northeast. The consultants have prepared an additional report on mining activity in NE, outlining current activity and locations.

Two separate studies indicate resurgence in BC's mining sector – especially for coal that predominates in Northeast BC.[17] They note that exploration expenditures are a leading indicator of potential mine development and that between 2009-10 and 2011, exploration spending in Northeast BC doubled. Companies made major exploration investments at 12 different potential mine sites – mostly in the Chetwynd/Pine River, Tumbler Ridge and Hudson Hope areas. Like other resource-based industries, however, proposed mines must go through an environmental assessment and approval process. These procedures can take months, making it difficult to estimate the timing of approvals and subsequent construction and production. In addition, while firms are optimistic about coal mining in Northeast BC, demand for coal is dependent upon global demand for steel. If global economic conditions deteriorate, mines may remain on the drawing board.

A2.3 Agriculture

Northeast BC has approximately 1,600 farms and ranches. The agriculture sector is key to the region and to British Columbia as a whole. According to the North Peace Economic Commission, the Northeast produces almost 90% of the province's grain and 95% of its canola. As well, the Peace is one of the best areas in the world for producing quality grass seeds. Honey production is also bountiful, with the region usually providing 30 percent of BC's honey crops. The longer summer days enable regional beekeepers to produce as much as three times more honey per hive then elsewhere in the province.

Livestock production in the Northeast is also strong. Ranchers raise traditional beef and dairy cattle, sheep, hogs, goats and horses. They are also increasingly diversifying into game farming of bison, reindeer and exotic livestock, including llama, alpaca, fox, ostrich, emu and wild boar. In fact, ranchers in the Northeast have some of the province's largest bison herds, producing nearly three quarters of BC's bison.

The organic market is important, too. An increasing number of Northeast farms are producing certified organic beef, bison, poultry, hogs, eggs, wheat, barley, herbs, hay, oil seeds, peas, as well as table and seed potatoes.

A2.4 Clean Energy

Clean energy is defined as energy that can be generated without creating environmental pollution and/or greenhouse gas (GHG) emissions.[18] Northeast BC currently has three clean energy projects in operation and seven under development, with the Site C dam and

[16] Exploration and Mining in Northeast Region, British Columbia. John R. DeGrace.2011
[17] Exploration and Mining in Northeast Region, British Columbia. John R. DeGrace.2011 and Forging Ahead: The mining industry in 2011. PriceWaterhouseCoopers
[18] **Powering our Province:** An Analysis of the Clean Energy Business and Workforce Opportunities for Communities in British Columbia. Global Advisors. July 2012.

hydroelectric generating project being the largest clean energy project planned for the region.

In recent years, the BC government has undertaken initiatives to enhance the use of clean energy. For example, in June 2012, the government announced that natural gas will be classified as a clean fuel when used to power liquefied natural gas extraction plants in northern BC. This decision is likely to be fundamental to the development of the LNG industry and the continued exploration and development of natural gas in the Northeast.

A2.5 Industrial Construction Industry

The development of Northeast BC's resource base is tied to the construction of new operations. Natural gas, mining and utility projects drive industrial construction in the region. After two to three years of significant spending between 2009 and 2012, major capital project expenditure from the natural gas industry will likely slow down for the short-term. In the medium-term, if companies decide to develop the proposed LNG Canada/Coastal Pipeline (Shell and TransCanada) or the BG/Spectra joint venture, their investments will initiate significant pipeline construction in the Northeast. As well, as natural gas production increases, firms may also need to expand gas processing facilities.

Clean energy will also drive construction activity. BC Hydro's Site C Dam and hydroelectric generating project is currently in the environmental and regulatory review stage and is expected to be built once regulatory approvals are granted.

A2.6 Conclusion

Northeast BC is rich with resources and commodities that are sought after not only by BC and Canada, but the world. As a safe haven for foreign investment, the potential for continued development of BC's mining and natural gas sectors is unprecedented. As the gateway to the Asia Pacific, the province is well-positioned to lead the expansion of Canada's trade in global markets.

While the globalization of the world economy has been positive for attracting investment, it also means that Northeast BC's economy is tied to global economic conditions. As a result, ongoing development in the region is reliant on a steady or growing global economy.

A3 > Overview of Northeast British Columbia Population and Labour Force

A3.1 Population

Like all of BC's northern regions, the Northeast is sparsely populated, with about 66,000 residents in 2011. Slightly over a third of the population, 36 percent, lives outside of incorporated communities. Major population centers include:

- Fort St. John: 18,700
- Dawson Creek: 11,585
- Fort Nelson: 3,900
- Chetwynd: 2,255
- Tumbler Ridge: 2,700
- Hudson's Hope: 970

Between 2006 and 2011, the population of Northeast BC grew by 1.9 percent to 65,550. That population increase, however, was far behind the province as a whole, which grew by seven percent. Interestingly, 2011 census data indicates that Fort Nelson – a community in the middle of natural gas exploration, production and production activity - actually lost 13.6 percent of its residents between 2006 and 2011.

The Northeast's population of Aboriginal people is over twice that of BC as a whole while its percentage of immigrants is significantly less. In fact, the region received less than 0.5 percent of BC's immigrant arrivals between 2007 and 2011.

Table A8 – Population Characteristics: BC and Northeast BC

Characteristic	BC	Northeast
Population (2011) (% of Total BC)	4,400,057 100%	65,550 1.5%
Population Growth (2006 – 2011)	7%	1.9%
Aboriginal Peoples (% of Population – Census 2006)	4.8%	12.7%
Immigrants (% of Population – Census 2006)	30.5%	7.3%
Immigrant Arrivals: 2007 – 2011 (% of Total BC) (Citizenship and Immigration Canada, Landed Immigrant Database)	100%	0.4%

Source: Census 2011 unless otherwise stated

As the chart below shows, the Northeast's population is younger than the provincial average. This statistic is consistent with other regions that have a larger Aboriginal population.

Table A9 - Age Demographics: BC and Northeast BC

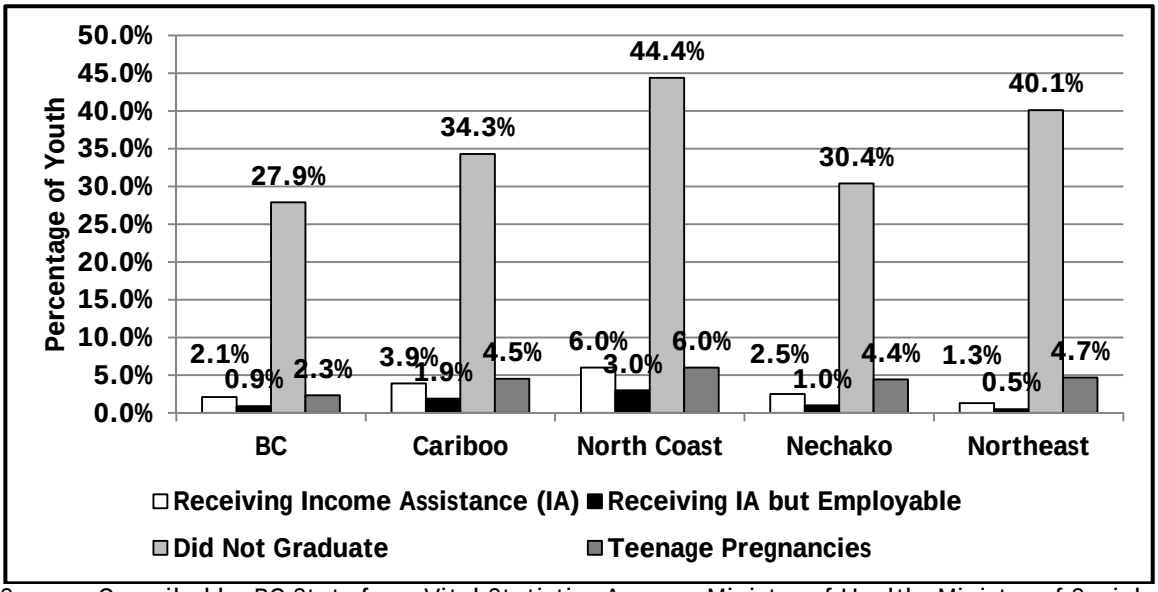
Characteristic	BC	Northeast
0-17 yrs.	19%	25%
18 – 24 yrs.	10%	10%
25-64 yrs.	56%	55%
65+ yrs.	15%	9%

Source: Census 2011

Some indicators point to potential barriers to youth participation in the labour force. As shown in Chart 1 below, the incidence of high school incompletion and teenage pregnancy is

higher in the Northeast than in BC as a whole. More positively, the percentage of Northeast BC youth (people aged 15-24) accessing income assistance is the lowest in the province.

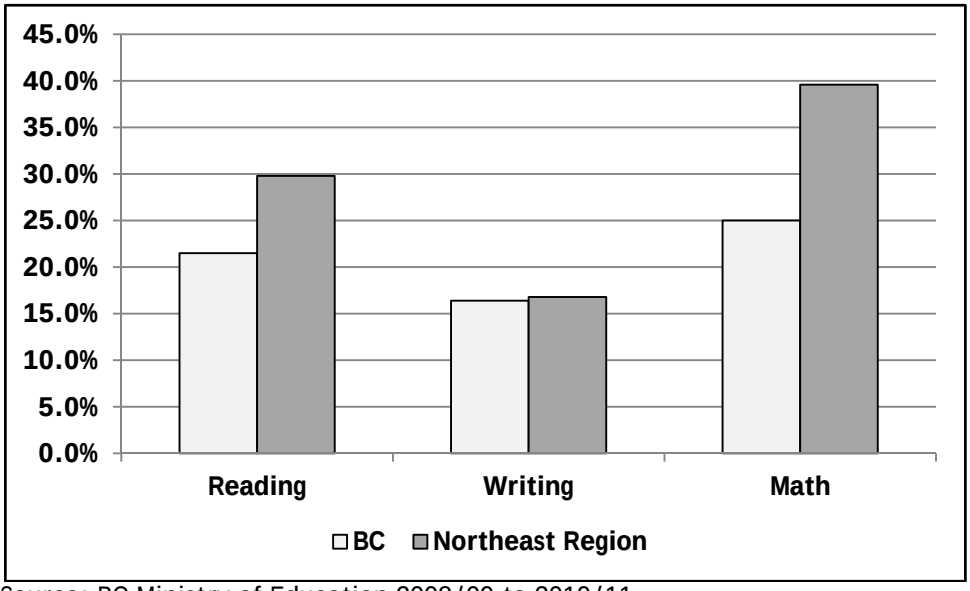
Chart A1 - Potential Barriers to Youth Participation in Employment Opportunities



Source: Compiled by BC Stats from Vital Statistics Agency, Ministry of Health, Ministry of Social Development and Ministry of Education. Employment Insurance Statistics, Statistics Canada

Northeast BC's youth, though, may be unprepared to participate in projected economic growth from an educational standpoint. Analysis of reading, writing and math skills from 2010 are troubling. As statistics from the BC Ministry of Education, 2008/09 - 2010/11 shows, in the Northeast, the percentage of grade 7 students operating below standard in these essential skills is greater than the province as a whole.

Chart A2 - Percentage of Grade 7 Students Operating Below Standard: BC and Northeast BC



Source: BC Ministry of Education 2008/09 to 2010/11

A3.2 Education Levels in the Population

Analysis of the 2006 data on education levels of Northeast BC (see Table 3 below) also presents both strengths and challenges. On the plus side, the percentage of the region's population with trades skills (25 per cent) is significantly higher than that of BC as a whole (15.5 percent). The Northeast population, however, has a significant proportion of people with minimal formal education, with 21 percent without high school completion, versus 11 percent for the entire provincial population.

Table A10 - Education Level: BC and Northeast BC

Characteristic	BC	Northeast
Population 24 – 54 years *without* High School Complete	11.0%	21.0%
Population 24 – 54 years with Certificate or Diploma	31.5%	36.0%
Population 24 – 54 years with University Degree	24.0%	10.0%
Population 24 – 54 years with Trades Skills	15.5%	25.0%

Source: Census 2006

A3.3 Labour Force

At 51,400 people, Northeast BC's labour force accounts for only 1.4% of BC's potential workforce. Given the economic and job growth in the region, it is unsurprising that overall labour force participation rates outpace the provincial average (76 percent versus 65 percent.) Further, given the predominance of male-dominated resource industries in the Northeast, men participate more in the labour force than women do. Increasing female participation in the Northeast workforce could offer a new source of labour supply.

Northeast BC has had the province's lowest unemployment rate for several years. Even with slowed natural gas activity, that trend continues in 2012, with regional unemployment at 4.8 percent in August.

Table A11 - Labour Force Characteristics: BC and Northeast BC

Characteristic	BC	Northeast
Labour Force in 2011	3,778,800	39,100
Participation Rate[19]	65.0%	76.0%
Male (2010)	70.0%	81.5%
Female (2010)	61.0%	72.0%
Employment Rate[20]	60.0%	72.5%
Average Unemployment Rate[21] in 2011	7.5%	4.9%
Unemployment Rate in May 2012	6.9%	3.9%
Unemployment Rate in August 2012	6.8%	4.8%

Source: Statistics Canada Labour Force Survey and Statistics Canada Labour Force Survey, Annual Averages Prepared by BC Stats

A3.4 Employment

In 2012, Northeast BC's employment picture continued to be a bright spot within the province. The region has the highest percentage of full-year/full-time workers and the highest average income. This strong income may result from the region having the highest percentage of workers in BC engaged in goods-producing industries which tend to be higher paying. Employment growth of 2.7% is the second highest in the province – behind only the North Coast/Nechako region. The North Coast will benefit from LNG development and activity there will drive upstream and midstream natural gas activity in the Northeast.

[19] The participation rate is the number of labour force participants expressed as a percentage of the population 15 years of age and over.

[20] The employment rate (formerly the employment/population ratio) is the number of persons employed expressed as a percentage of the population 15 years of age and over.

[21] The unemployment rate is the number of unemployed persons expressed as a percentage of the labour force.

Table A12 – Employment: BC and Northeast BC

Characteristic	BC	Northeast
Percentage of Full-year/Full-time Workers	46.5%	47.5%
Average Income (All Workers)	$34,978	$40,087
Average Income (Full-time Male Workers)	$57,772	$66,376
Percentage of Employment in Good-producing Sectors	19.7%	28.5%
Construction	9.0%	9.4%
Manufacturing	7.2%	5.6%
Mining, Oil and Gas, Forestry and Fishing	1.8%	10.8%
Agriculture	1.0%	n/a
Utilities	0.5%	n/a
Percentage of Employment in Service Sectors	80.3%	71.2%
Estimated Employment Growth (2010 – 2015) (BC Labour Market Scenario Model, 2010-2020)	1.8%	2.7%

Source: Statistics Canada Labour Force Survey, Annual Averages Prepared by BC Stats unless otherwise stated.

A3.5 Review of Existing Labour Market Information (LMI) Reports

Since 2010, various initiatives have examined labour market demand for BC in specific regions and industrial sectors. To help develop the list of high demand occupations, Ingenia reviewed the following reports:

Table A13 - Labour Market Reports Reviewed

Labour Market Report	Year Released	Regional occupational demand forecast?	Comments
BC Natural Gas Labour Demand (not yet published)	October 2012	Yes	Projects occupational demand as a result of new jobs and age-related attrition.
British Columbia Hiring Requirements and Available Talent Forecasts Exploration, Mining, and Stone, Sands and Gravel	September 2012	Yes	Hiring requirements for NE calculated using region's percentage of projected growth in exploration, mining and stone, sands and gravel activity.
BC Solid Wood Sector Labour Market and Training Needs Analysis	May 2012	Yes	Outlook to 2016. Projects occupational demand as a result of new jobs plus replacement jobs. NE occupational demand calculated as 2% of total province given it has 2% of BC solid wood sector's employment.
Construction Looking Forward: 2012 – 2020 Key Highlights for British Columbia	2012	No	Does not quantify demand but provides commentary on projected labour supply-demand gap by occupation.
Healthcare Labour Market Trends	2012		Basic overview from government of BC.
Labour Market Information on Recruitment and Retention in Primary Agriculture	2009	No	Commentary related to BC's recruitment and retention as compared to rest of Canada.
The Decade Ahead: Labour Market Projections and Analysis for Canada's Oil and Gas Industry: 2010-2020	2011	Yes	Hiring requirements due to industry activity and age-related attrition for 36 core industry occupations.

Labour Market Report	Year Released	Regional occupational demand forecast?	Comments
Canada's Oil and Gas Labour Market Outlook to 2015	May 2012	Yes	Hiring requirements due to industry activity and age-related attrition for 36 core industry occupations.

As Table 6 shows, these labour market reports varied as to whether they provided information at the provincial or regional level. As well, timelines do not align. Some only considered the number of jobs available as a result of expansion (new jobs). Other reports, like solid wood, included new jobs and replacement jobs (those due to retirements or deaths of other workers) in their occupational projections.

Each report uses different methodologies to project demand for occupations, which makes it impossible to simply add quantitative projections together to come up with a number. Nonetheless, each study offers valuable qualitative factors for labour market analysis of the Northeast BC region. Key information from each report is summarized below.

A3.5.1 Construction Looking Forward 2012-2020 Key Highlights British Columbia (released 2012)

Non-residential construction is unevenly distributed across BC. Mining, pipeline, industrial and utility projects in the north will generate jobs, while commercial, institutional and civil work is weaker in the south. Given the anticipated projects in BC, local labour shortages will be likely for many construction occupations, identified in Table 7.

Table A14 - Construction Occupations with Local Labour Force Limitations

▪ Boilermakers	▪ Gasfitters
▪ Bricklayers	▪ Heavy Equipment Operators
▪ Carpenters	▪ Heavy-duty equipment mechanics
▪ Concrete finishers	▪ Insulators
▪ Construction estimators	▪ Ironworkers
▪ Construction managers	▪ Refrigeration and air conditioning mechanics
▪ Construction millwrights and industrial mechanics	▪ Steamfitters and pipefitters
▪ Contractors and supervisors	▪ Trades helpers and labourers
▪ Crane operators	▪ Truck drivers
▪ Drillers and blasters	▪ Welders
▪ Electricians	

The BC construction workforce's capacity to fill labour demand from the major projects will depend on worker mobility, flexibility and upgrading skills. BC should have enough workers in the construction labour force to address demand. Construction skills and experience are quite transferable between industrial capital projects. Workers, though, must be willing to be mobile and move from project to project. Barriers to mobility – including unwillingness to move - and limited portability of skills are likely to create labour shortages.

Demographics will also play a role. The expected number of potential new entrants to the sector will simply be insufficient to offset hiring demand due to retirements. The loss of experienced, journeyed trades through retirement will also have an impact on the industry's capacity to bring on apprentices. Further, BC's construction industry will have to compete for workers with other major resource projects in Alberta, Saskatchewan, Manitoba and Newfoundland and Labrador.

To fill the anticipated demand, the BC construction sector will need to recruit from other industries and provinces and attract immigrants.

A3.5.2 British Columbia Hiring Requirements and Available Talent Forecasts Exploration, Mining, and Stone, Sands and Gravel (released September 2012)

Some previous reports predicted potential exploration expenditures in Northeast BC. This forecast, in contrast, estimates that, to 2022, only 2.5 percent of BC's hiring within the mining sector will be in Northeast BC. The predicted increase of 420 jobs includes hiring for new job openings as well as replacing retirees.

In the Northeast, exploration activity will account for 57 percent of the industry's hiring or 240 positions. Mining exploration typically requires more technical and professional workers and so the majority of hiring will be for geologists, geochemists and geophysicists, drafting technologists and technicians, geological and mineral technologists and technicians, mapping and related technologists and technicians and geological engineers. If available, locally based technical workers could be involved in the exploration phase, but many of the professionals (engineers and geologists) will commute from head office to the region.

Another 40 percent of the hiring or 170 positions will be for work at an operating mine. The majority of these jobs are trades and production-related and include occupations such as heavy equipment operators, truck drivers, heavy-duty equipment mechanics, underground production and development miners and millwrights.

Finally, hiring for the stone, sand and gravel sub-sector will account for two percent of the industry's hiring requirements in Northeast, or 10 jobs. These positions typically include trades and production occupations like heavy equipment operators, primary production managers, truck drivers, production and development miners and supervisors, mining and quarrying.

A3.5.3 Site C Dam and Hydroelectric Generation

The Site C dam and hydroelectric generation project is planned for the Peace River Hudson Hope area in Northeast BC, approximately seven kilometres southwest of Fort St. John. With construction underway, the occupations expected to be in greatest demand include:

- Heavy Equipment Operators
- Construction Supervisors
- Carpenters
- Labourers
- Iron Workers
- Truck Drivers
- Electricians
- Boilermakers
- Kitchen personnel

A3.5.4 BC Solid Wood Sector Labour Market and Training Needs Analysis May 2012

Despite an overall decline in employment of 30 percent since 2006, the Solid Wood sector has experienced an extremely tight labour market, suggesting that workers downsized from this industry are finding work in other industries. In addition, the aging population is contributing to significant hiring challenges, given that 70 percent of the workforce is over 40 years of age (27 percent are over 55 years). This situation is particularly acute in the sawmill and wood preservation sub-sectors.

From an occupation perspective, skills shortages exist in northern BC, with millwrights, industrial electricians and heavy-duty mechanics among the occupations with the greatest vacancy rates. Solid wood employers in northern BC report a 4.7 percent vacancy rate – highest in the province. This rate is unsurprising given the competition for these trades amongst the construction sector and other resource sectors.
Occupations projected to experience the greatest growth between 2012 and 2016 are industrial engineering, manufacturing technologists and technicians and manufacturing/operations managers.

A majority of BC solid wood employers (56.5 percent) indicate that they have no HR strategy to address workforce requirements. The industry relies heavily on the secondary school system as a source for entry-level and semi-skilled occupations, including labourers and sawmills machine operators. These occupations account for close to 75 percent of the sector's workforce. The BC apprenticeship system is the key labour source for skilled trades workers. Experienced workers from within the industry typically fill manager and supervisor roles.

Only two percent of the sawmill and wood preservation workforce are employed in Northeast BC. Occupations in the solid wood sector projected to have the greatest number of job openings between 2012 and 2016 due to growth and attrition include:

- Sawmill machine operator
- Wood processing labourers
- Millwrights and industrial maintenance mechanics
- Supervisors, processing
- Industrial electricians
- Sawfilers/benchmen/sawfitters

A3.5.5 The Decade Ahead: Labour Market Projections and Analysis for Canada's Oil and Gas Industry: 2010-2020 (released March 2011) and Canada's Oil and Gas Labour Market Outlook to 2015 (released May 2012)

In 2011, the natural gas industry directly employed over 13.500 workers in BC:

- 8,685 in the oil and gas services sector
- 3,730 in the Exploration and Production (E and P) sector
- 1,000 in the natural gas pipeline sector

Prolonged low natural gas prices and decreased demand from the American export markets have put significant pressure on BC natural gas producers. The development of the LNG industry is key to increasing the demand for and price of natural gas. While LNG export facilities are planned for ports in Northwest BC, it is the Northeast region that provides the supply of gas.

BC natural gas production will need to almost double its 2012 rate to supply expected LNG export commitments. In consequence, the Northeast BC natural gas industry occupations that will experience the greatest increases in demand include:

- Oil and gas drillers and service workers
- Supervisors, drilling and service
- Heavy equipment operators
- Truck drivers
- Gas plant operators
- Drilling coordinators/primary production managers
- Millwrights and machinists
- Welders
- Petroleum engineers
- Heavy-duty mechanics
- Steamfitters and pipefitters
- Industrial electricians

The development of the LNG industry will also drive industrial construction in the region. Companies will need to build new pipelines to transport natural gas from the fields in the Northeast to the export facilities in Northwest BC.

A3.5.6 Labour Market Information on Recruitment and Retention in Primary Agriculture (released 2009)

Canada's primary agriculture industry hires a variety of technical and trades workers as well as general farm workers. The proportion of on-farm positions in Canada that are unfilled is estimated to be 9 percent (on-farm vacancy rate). In 2008 this vacancy rate translated into approximately 25,000 non-seasonal job openings and 16,500 seasonal job openings remaining open across Canada. BC's vacancy rate was significantly higher at 15 percent, second only to the Atlantic provinces which reported a 17 percent vacancy rate.

Along with competing with other industries for workers, other issues exacerbate the agriculture industry's recruitment and retention issues, including:

- A decreasing labour pool in rural areas
- A portion of the work being seasonal
- Unsophisticated recruitment practices. Most employers use word-of-mouth and referrals from friends and family as their usual recruitment methods; and
- Only 25 percent of employers have human resource plans.

In the sector, full-time occupations reported to be the most difficult to recruit and retain include:

- Machinery Operators and Mechanics (14 percent vacancy rate)
- General Farm Workers (12 percent vacancy rate)
- Technical Specialists (9 percent vacancy rate)
- Supervisors and Managers (7 percent vacancy rate)

The vacancy rate for seasonal workers is significantly higher than that of non-seasonal workers. BC reports the highest vacancy rate for seasonal workers at 40 percent or approximately 4,250 positions. Canadian agriculture employers rely on approximately 27,000 temporary foreign workers to address seasonal workforce requirements.

A3.5.7 Healthcare Labour Market Trends[22]

BC's healthcare workers are employed in hospitals and nursing and residential care facilities. They also work in ambulatory healthcare services and social assistance.

Approximately 50 percent of healthcare industry workers are in jobs that are directly healthcare-related. The single largest occupational group is nurses. In addition:

- 26 percent of health industry workers are in sales and service occupations.
- 16 percent are in business, finance and administrative occupation.
- 7 percent are in management.

In Northeast BC, in 2010, the healthcare industry employed the following occupations:

[22] Source: www.bcjobs.ca

Table A15 - NE BC Healthcare Industry Occupations 2010

Healthcare Occupation	Estimated NE BC Employment in 2010
Registered nurses	490
Nurse aides, orderlies and patient service associates	350
Medical technologists and technicians (except dental health)	150
Ambulance attendants and other paramedical occupations	110
Licensed practical nurses	80
Dental assistants	80
General practitioners and family physicians	70
Specialist physicians	40
Pharmacists	40
Dentists	30
Physiotherapists	30
Dental hygienists and dental therapists	30
Occupational therapists	20
Optometrists	10
Chiropractors	10
Dietitians and nutritionists	10
Audiologists and speech-language pathologists	10
Head nurses and supervisors	10

Source: BC Stats used the B.C. Labour Market Scenario Model (BCLMSM) as a benchmark for industry employment to produce *British Columbia Regional Employment Projections Northeast Development Region: 2010 - 2015.*

An aging population has meant that the BC healthcare industry is growing at a greater rate greater than the average of all industries. In 2010, 8.9 percent of Northeast BC's labour force was employed within the health and social services sector. Employment in the region's healthcare sector is expected to grow by 3.2 percent annually between 2012 and 2020.

A3.6 Using Detailed BC Labour Market Information from BC Statistics

As the Ministry of Jobs, Tourism and Innovation notes on its website,

> Labour Market information (LMI) is a variety of information on careers, occupations, learning and the labour market, used to help make informed decisions about the labour market and the transitions that affect people's lives….(LMI) can be used to predict outlooks for various occupational groups based on a variety of factors (economic, demographic, social and political).

For the Northeast Training Plan, a key labour market information report is the *BC Labour Market Outlook*, which the Ministry of Jobs, Innovation and Tourism develop in partnership with BC Stats and the Ministry of Finance. The most recent version, *BC Labour Market Outlook 2010-2020,* provides labour market demand and supply forecasts for BC and its regions from 2010 to 2020, based on output from the B.C. Labour Market Scenario Model. The B.C. Labour Market Scenario Model is a tool that helps us understand the likely future of regional and provincial labour markets.

Developed by the BC government in 2009, the information the Model provides helps citizens, employers and government to accurately forecast future demand and supply for a range of occupations. As the *Outlook* notes[23]:

> The Outlook seeks to identify significant trends for the labour market of the future that can inform decision making, based on statistical data, assumptions, and consultation with industry and other stakeholders. However, within particular occupations and regions there may be unique conditions that are not captured in this analysis. Assumptions and conditions may also change over time. Thus, despite best efforts, actual conditions may differ from those presented in the B.C. Labour Market Outlook.

The *BC Labour Market Outlook* uses LMI that is organized according to the National Occupational Classification (NOC). NOC is the nationally accepted reference on occupations in Canada. It organizes over 40,000 job titles into 500 occupational group descriptions. Labour market economists use the NOC to compile, analyze and communicate information about occupations, and to understand the jobs found throughout Canada's labour market.

[23] B.C. Labour Market Outlook 2010-2020, p. 2.

The NOC provides a standardized framework for organizing the world of work into a coherent system. It uses numbers to classify occupational categories and specific occupations. Below is an example of the NOC Structure:

Sample structure of the National Occupation Classification (NOC)	
NOC Code	**NOC Labels**
0	Management occupations
00	Senior management occupations
001	Legislators and senior management
0011	Legislators
0012	Senior government managers and officials
0013	Senior managers - financial, communications and other business services
0014	Senior managers - health, education, social and community services and membership organizations
0015	Senior managers - trade, broadcasting and other services, n.e.c.
0016	Senior managers - construction, transportation, production and utilities

The NOC also provides codes for occupations for inclusion in the Training Plan. Many of these NOC codes begin with a 7, which the NOC uses to describe trades, transport and equipment operators and related occupations.

Ingenia also reviewed detailed BC Labour Market Information provided to us, which provide the detailed statistics behind the annual *Labour Market Outlook* report.

BC LMI 2010-2020 considers a list of major capital projects that may be occurring in a region. Using this list, it then makes projections as to the demand for occupations. It also identifies occupational age-related attrition (workforce retirements and deaths) that can generate significant job openings and is an important aspect of labour demand. Many sector-specific labour market information reports for British Columbia use BC LMI as a key input.

Making projections of the demand for occupations relates to the number of projects on the Major Projects list. Obviously, the number of projects on the list influences the number of projected jobs: for example, does the Major Project list include two pipelines being constructed or none?

A4 > Occupational Demand in Northeast BC

Northeast BC's labour market outlook is tied to the potential expansion of its natural resource based industries, including mining, natural gas and clean energy. Growth in the region's natural gas sector is linked to the development of liquefied natural gas (LNG) export facilities in Northwest BC. Projects related to the development of LNG are still awaiting final investment decisions (FID).

To accommodate the current uncertainty about which and how many projects will go ahead, this analysis uses two potential activity scenarios to project a range of employment growth for Northeast BC:

- Conservative Base Scenario: BC LMI 2010-2020
- Expected Scenario: BC natural gas projections in a growth scenario[24] + BC mining projections in a baseline scenario[25] + upgraded Site C construction[26] + solid wood LMI projections[27]

The major capital projects associated with each scenario are outlined in the table below.

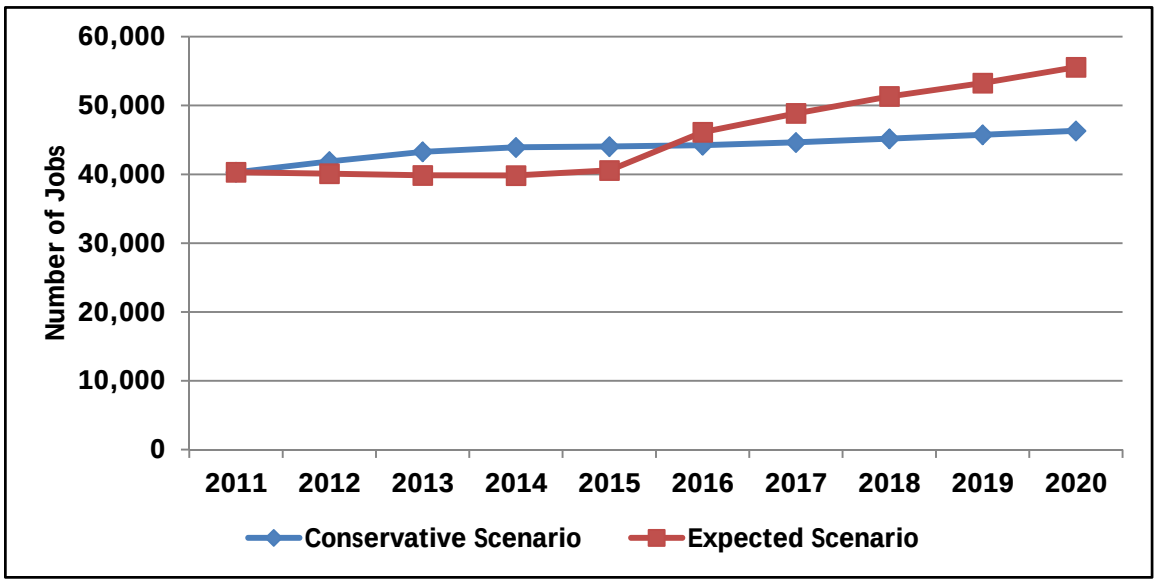
Table A16 - Major Capital Projects

Conservative Base Scenario	Expected Scenario
▪ Cabin Gas Plant ▪ Site C Dam and Hydroelectric Generation	▪ Cabin Gas Plant ▪ Site C Dam and Hydroelectric Generation (2012[28]) ▪ Horn River Pipeline ▪ Coastal Pipeline ▪ Increased natural gas activity due to development of three LNG projects (Douglas Channel, Kitimat LNG, LNG Canada)

Chart 3 below outlines the projected employment outlook based on the two potential scenarios described above. The *Conservative Scenario* indicates a much more steady growth for employment in Northeast BC with an increase of approximately 6,000 jobs between 2011 and 2020. In contrast, the *Expected Scenario* reflects an expected slowdown in natural gas activity because of natural gas prices remaining low until 2015. The scenario then predicts a sharp increase in jobs (over 15,000 added) resulting from resumed natural gas exploration and production activity, pipeline construction to support LNG development and Site C dam construction.

[24] Petroleum HR Council. 2010 and 2011
[25] Mining Industry HR Council. September 2012.
[26] Provided by BC Hydro as of July 2012.
[27] BC Solid Wood Sector Labour Market and Training Needs Analysis. 2012
[28] The data is based on the preliminary workforce assessments undertaken in BC Hydro's 2010 Cost Estimate.

Chart A3- Northeast BC Labour Demand Outlook 2011-2020[29]



In either scenario, age-related attrition (or retirements and deaths from the labour force) will also have a significant impact on Northeast BC's hiring requirements. In the *Conservative Scenario*, replacing workers will drive 60 percent of the region's hiring while filling new jobs will account for 40 percent.

A4.1 Occupational Demand 2012-2020

Table 10 outlines the occupations in Northeast BC predicted to have the greatest number of job openings due to industry activity and age-related attrition from 2012 to 2020. These occupations are in the natural resources industries that drive the regional economy.

[29] These figures may change again, based on the validation that is currently taking place for the labour demand figures for the BC natural gas sector.

Table A17 - NE BC Occupational Demand

Occupation	Conservative Base Scenario: BC LMI 2010-2020 (# of Job Openings)		Expected: BC Natural Gas + Site C + Mining + Solid Wood LMI (# of Job Openings)
	3-digit estimate	4-digit estimate[30]	4-digit estimate
1. Motor Vehicle and Transit Drivers (741)	**1,145**		
Truck Drivers (7411)		860	860
2. Heavy Equipment Operators (7421)	**555**	555	955
3. Machinery and Transportation Equipment Mechanics (731)	**370**		
Heavy-duty Equipment Mechanics (7312)		155	295
Construction Millwrights and Industrial Mechanics (7311)		165	285
4. Primary Production Labourers (861)	**335**		
Oil and Gas Drilling, Servicing and Related Labourers (8615)		200	750
5. Trades Helpers and Labourers (761)	**305**		
Construction Trades Helpers and Labourers (7611)		290	1,160
6. Carpenters and Cabinetmakers (727)	**295**		
Carpenters (7271)		280	280
7. Contractors and Supervisors, Trades and Related Workers (721)	**275**		325
8. Central Control and Process Operators in Manufacturing and Processing (923)	**265**		
Central Control and Process Operators, Mining and Mineral Processing (9231)		30	30

[30] Job openings for occupations at the 4 digit level were estimated using 2010 employment estimates for Northeast BC at the 4 level National Occupational Classification – Stats (NOC-S) as report at www.bcstats.gov.bc.ca/StatisticsBySubject/LabourIncome/OtherData/RegionalEmploymentProjections.aspx. An assumption was made that the employment estimate for the 4-digit NOC-S was similar for the corresponding 4-digit National Occupations Classification (NOC) for each 3-digit NOC included in BC LMI 2010-2020. This allowed an estimation of percentage or ratio of NOC at the 4-digit level for each 3-digit NOC. That same percentage or ratio was then applied to the 3-digit NOC labour demand estimate to estimate 4-digit NOC demand. For example: in 2010 it is estimated that Heavy-duty Equipment Mechanics (NOC-S: H412) made up 42% of Machinery and Transport Equipment Mechanics (NOC-S: H41) according to BC Stats. Therefore, it is estimated that Heavy-duty Equipment Mechanics (NOC: 7312) will experience 42% of the Machinery and Transport Equipment Mechanics (NOC: 731) job openings projected in BC LMI 2010-2020 or 155 positions.

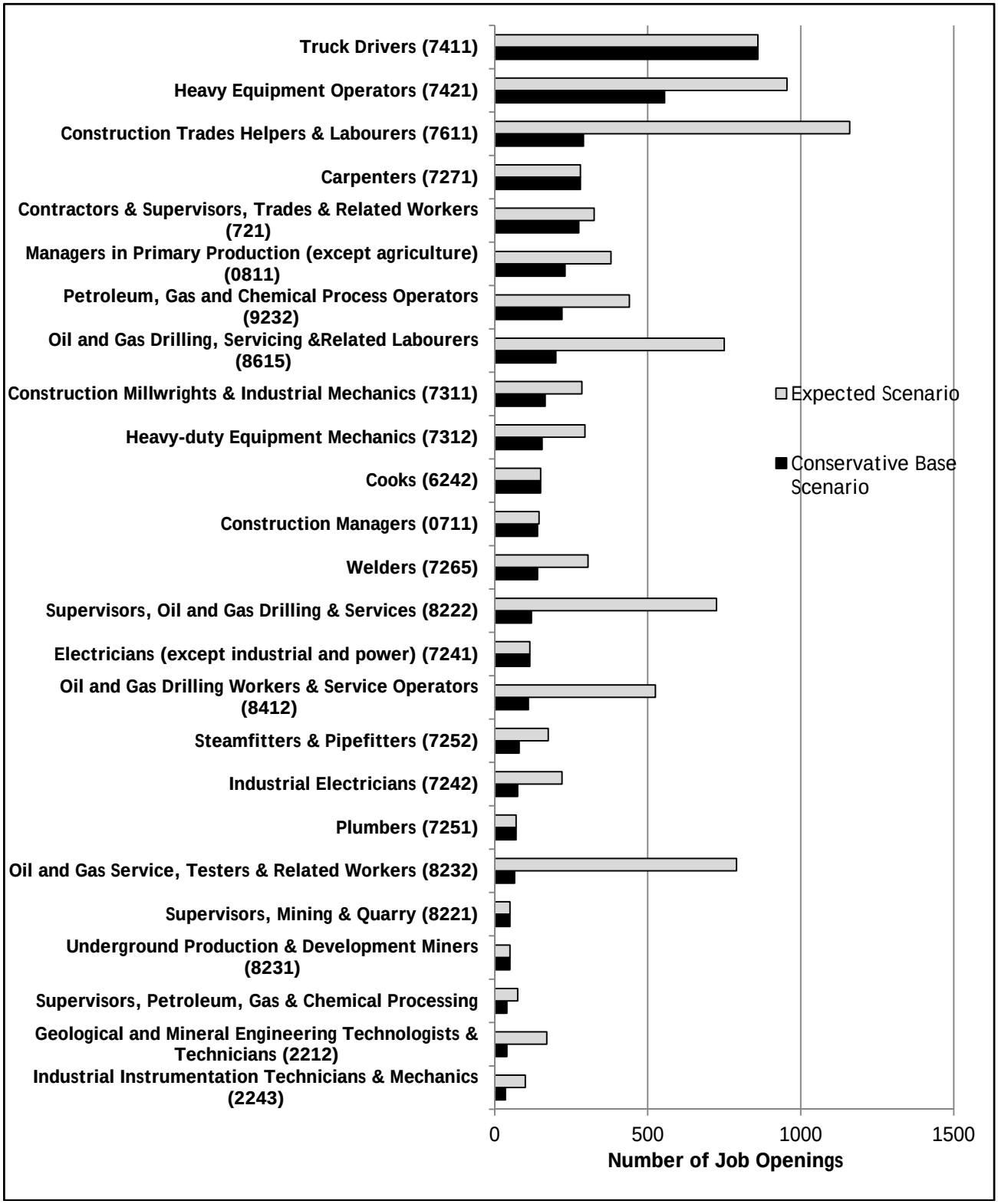
Occupation	Conservative Base Scenario: BC LMI 2010-2020 (# of Job Openings)		Expected: BC Natural Gas + Site C + Mining + Solid Wood LMI (# of Job Openings)
	3-digit estimate	4-digit estimate[30]	4-digit estimate
Petroleum, Gas and Chemical Process Operators (9232)		220	440*
9. Electrical Trades and Telecommunications Occupations (724)	**240**		
Industrial Electricians (7242)		75	220
Electricians (except Industrial and Power) (7241)		115	115
10. Managers in Construction and Transportation (071)	**230**		
Construction Managers (0711)		140	145
Transportation Managers (0712)		30	30
11. Managers in Primary Production (except agriculture) (0811)	**230**	230	380
12. Metal Forming, Shaping and Erecting Trades (726)	**190**		
Boilermakers (7262)		10	35
Iron Workers (7264)		20	20
Sheet Metal Workers (7261)		25	25
Welders and Related Machine Operators (7265)		140	305
13. Supervisors, Mining and Oil and Gas (822)	**170**		
Supervisors, Mining and Quarry (8221)		50	50
Supervisors, Oil and Gas Drilling and Services (8222)		120	725
14. Plumbers, Pipefitters and Gasfitters (725)	**165**		
Plumbers (7251)		70	70
Steamfitters and Pipefitters (7252)		80	175
Gasfitters (7258)		15	45
15. Chefs and Cooks (624)	**165**		
Chefs (6241)		15	15
Cooks (6242)		150	150
16. Mine Service Workers and Operators in Oil and Gas (841)	**140**		
Underground Mine Service and Support Workers (8411)		30	30
Oil and Gas Drilling Workers and Service Operators (8412)		110	525
17. Technical Occupations in Electronics and Electrical Engineering	**135**		

Occupation	Conservative Base Scenario: BC LMI 2010-2020 (# of Job Openings)		Expected: BC Natural Gas + Site C + Mining + Solid Wood LMI (# of Job Openings)
	3-digit estimate	4-digit estimate[30]	4-digit estimate
(224)			
Industrial Instrumentation Technicians and Mechanics (2243)		35	100
18. Underground Miners, Oil and Gas Drillers and Related Workers (823)	**115**		
Underground Production and Development Miners (8231)		50	50
Oil and Gas Service, Testers and Related Workers (8232)		65	790
19. Supervisors, Processing Occupations (921)	**100**		
Supervisors, Mineral and Metal Processing (9211)		10	10
Supervisors, Petroleum, Gas and Chemical Processing (9212)		40	75
20. Technical Occupations in Physical Science (221)	**55**		
Geological and Mineral Engineering Technologist and Technician (2212)		40	170

***** Includes Petroleum, Gas and Chemical Process Operators + Power Engineers

The chart on the following page shows the occupations (4-digit NOC level) with the greatest number of openings. One bar shows the number of openings based on predictions from the *Expected Scenario*, while the other bar shows the growth expected under the *Conservative Scenario.*

Chart A4- Industrial Construction and Natural Resource Occupations with Greatest Job Openings: 2012-2020



A4.2 Job Openings in Key Community Support Service Occupations: 2012-2020

In addition to occupations that will likely expand to meet the needs of the industrial construction and natural resource sectors, several community occupations face significant hiring challenges due to employment growth and age-related attrition. Many of the occupations are key to regional development. People in these jobs will help ensure that communities remain attractive to the workers and families that other industries must recruit and retain to address labour needs.

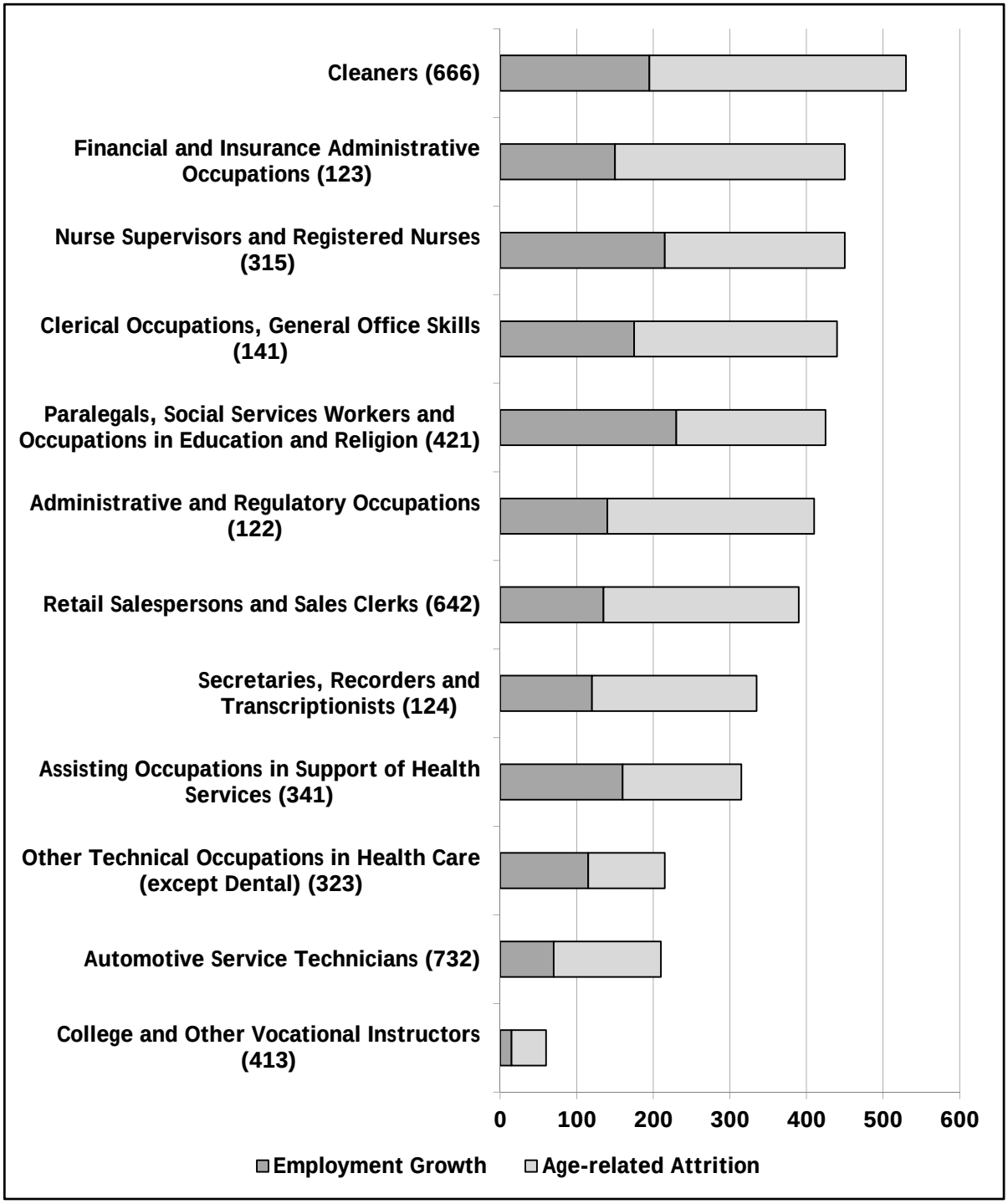
Table 11 outlines the community and support service occupations with greatest job openings between 2012 and 2020. (Note that no sector-specific LMI is available to project the need for community occupations. Therefore, the occupational projections below are based on the *Conservative Scenario,* which is extrapolated from the BC LMI 2010-2020 for the Northeast region.)

Table A18 - Community and Support Service Occupations with Greatest Job Openings: 2012-2020

Occupation	Job Openings Due to:		Total
	Employment Growth	Age-related Attrition	
Cleaners (666)	195	335	530
Nurse Supervisors and Registered Nurses (315)	215	235	450
Financial and Insurance Administrative Occupations (123)	150	300	450
Clerical Occupations, General Office Skills (141)	175	265	440
Paralegals, Social Services Workers and Occupations in Education and Religion (421)	230	195	425
Administrative and Regulatory Occupations (122)	140	270	410
Retail Salespersons and Sales Clerks (642)	135	255	390
Secretaries, Recorders and Transcriptionists (124)	120	215	335
Assisting Occupations in Support of Health Services (341)	160	155	315
Other Technical Occupations in Health Care (except Dental) (323)	115	100	215
Automotive Service Technicians (732)	70	140	210
College and Other Vocational Instructors (413)	15	45	60

Chart 5 following page shows the occupations (3 digit NOC level) with the greatest number of openings expected under the *Conservative Scenario.* The bars show the amount of growth in the occupation that result from employment growth as well as retirements and deaths.

Chart A5 - Job Openings in Key Community Support Service Occupations: 2012-2020



A5 > Key Considerations for Training Plan

While the Northeast region continues to be an economic and revenue generating hub for British Columbia, its population growth and ability to attract migrants from other parts of BC, Canada or other countries lag behind southern regions of the province.

High labour force participation rates and low unemployment rates are indicators of chronic labour shortages. Most analysts expect that the local labour force will continue to fall short of meeting the Northeast's workforce requirements.

Looking forward, local people may face barriers to obtaining the higher skilled jobs that regional development can offer. Many have not completed high school and large numbers of students currently have skills that are lower than the provincial standard in reading, writing and math-skills essential for trades, technical and professional jobs. Grade 8 students in 2012 could potentially start a trades career in 2016.

Along with addressing local barriers to full labour force participation, Northeast BC firms will have to look outside of the region for potential workers. They will have to draw upon all potential sources of workers, including interprovincial, international and within-BC migrants and temporary foreign workers. Local communities will need to be attractive to workers and families. Ensuring community support services such as healthcare, education, social services and retail sectors have the employees required will also be key. In the face of fierce competition, companies will also have to offer creative work arrangements such as fly-in/fly-out and rotational assignments.

Companies will also need to look to ways to transfer knowledge and skills from their experienced workers to younger, less experienced workers prior to retirement.

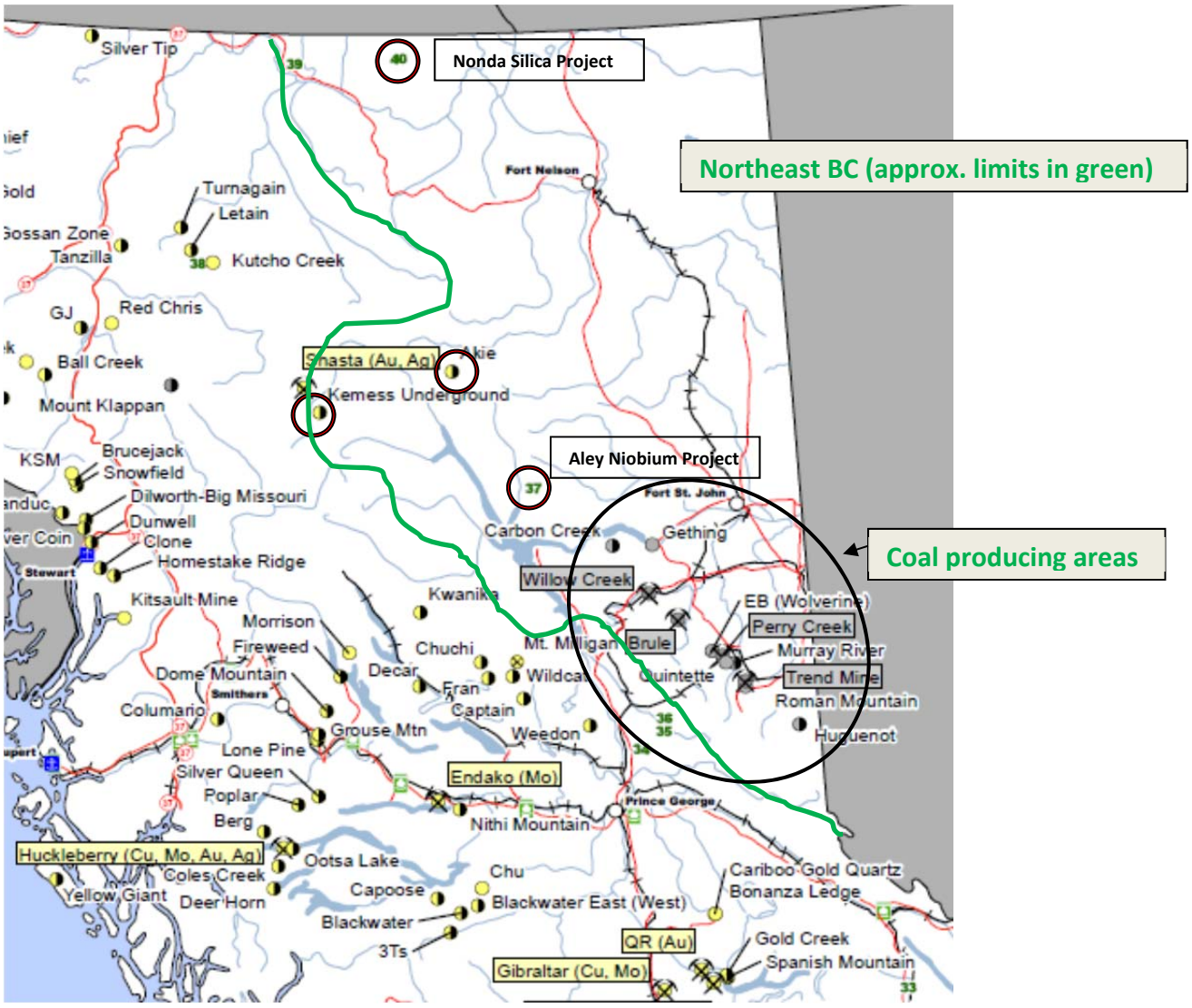
Developing a Training Plan is useful, but it is only part of the solution to regional challenges. An overall workforce plan is required to identify interventions that are currently preventing Northeast BC from attracting the labour supply it requires.

Appendix B: Possible Northeastern BC Mining Projects

B1 > Mining and Exploration Activity in Northeastern British Columbia

Mineral exploration and production in the northeastern corner of BC is dominated by energy – coal, oil and gas. Some hard-rock (primarily base metals and gold) activities, however do take place within the Northeast economic development region, as defined by the government of British Columbia. Some of these non-energy related activities are described below.

Figure B6 – Operating Mines and Major Exploration Projects (2011) from BC Dept. of Energy and Mines



B2 > Base Metals, Precious Metals, Industrial Minerals

B2.1 Akie and Kechika Regional Projects

Location: N57° 06' W124° 46'; 260 km NNW of Mackenzie in northeastern BC (see location map above).

Ownership: 100 percent owned by Canada Zinc Metals Corp.

Description: Indicated resource of 12.7 million tonnes of 8.38 percent Zn, 1.68 percent Pb and 13.7 g/t Ag at 5 percent Zn cut-off. Inferred resource of 16.3 million tonnes of 7.38 percent Zn, 1.34 percent Pb and 11.6 g/t Ag at 5 percent Zn cut-off

Status: Work is on-going with diamond drilling crews active in 2012. Environmental baseline studies are on-going. Additional deposits are likely to be discovered in similar geology in the region.

B2.2 Kemess Underground Project

Location: N57° 00' W126° 45'; 255 km NNE of Smithers, BC (see location map above).

Ownership: 100 percent owned AuRico Gold through its acquisition of Northgate in October, 2011.

Description: In 2011, a Preliminary Economic Assessment for the Kemess Underground Project was completed, which outlined the development of an underground block/panel cave operation. Highlights of the Study include: average annual production of 95,000 ounces of gold at a net cash cost of $115 per ounce; average annual copper production of 41.4 million pounds; an approximate 12 year mine-life. Based on the positive results of a Preliminary Assessment, a full Feasibility Study is underway, which is expected to be completed in 2012 or early 2013.

Status: In 2012/13, a Feasibility Study is scheduled to be completed for the Kemess Underground copper-gold project.

B2.3 Shasta Gold/Silver Project

Location: N57° 12' W127° 04'; 30 km north of the Kemess Mine (see above).

Ownership: owned/controlled by Sable Resources.

Description: Small production (15,000 tons) in 2004 and 2005. Little activity since then and none apparently planned.

Status: No news since December, 2010.

B2.4 Aley Niobium Project

Location: N56° 24' W123° 48'; 140 km north of Mackenzie (see location above).

Ownership: owned/controlled by Taseko Mines Ltd.

Description: Niobium-based steel is found in turbines, aerospace and automobile machinery, and oil and gas pipelines, among other end-products. Assay results from a recent drill program found high grade, near surface mineralization. The results indicate the deposit has the potential to become a significant low cost, open pit niobium mine.

Status: Taseko undertook a comprehensive work program on the project in 2011. Additionally, a core drilling program was conducted to collect preliminary geo-technical data for site design and metallurgical test work. Taseko used the information gathered during the 2011 work program season, along with historical drill data, to convert the inferred resources into a measured and indicated reserve in March 2012.

B2.5 Nonda Silica Project

Location: N59° 33' W125° 21'; 180 km northwest of Fort Nelson (see location above).

Ownership: concept project of Stikine Energy (also known as Stikine Gold).

Description: Stikine is searching for local sources of raw material that could be processed to make high-quality frac sand. By focusing on the immediate areas around the shale gas basins Stikine's projects will have a significant cost advantage because of proximity to these growing markets. The Company made significant discoveries of large quartz-pure sandstones projects and has advanced work to a pilot-scale process trial that has demonstrated excellent results and anticipated low costs.

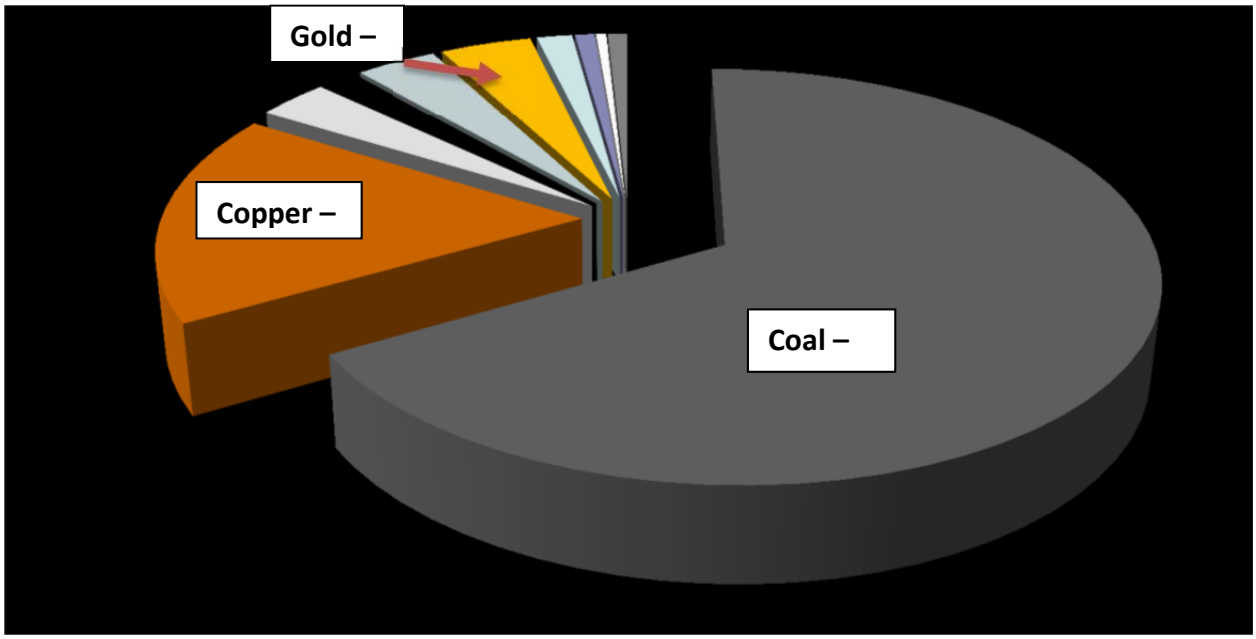
Status: Stikine reports that it has made "significant" discoveries of large quartz-pure sandstone deposits and has advanced work to a pilot-scale process trial that has demonstrated possibly economically viable results.

Stikine states that it wishes to become a "dominant frac sand producer" and supplier to British Columbia's shale gas industry. The **Nonda Project** is located approximately 150 km west of the Horn River Basin and the **Angus Project** is approximately 200 km south of the Montney Basin, with major infrastructure nearby. Both projects are in the heart of major gas plays but opportunities to supply beyond BC into other markets may also exist.

B3 > Coal

Coal remains, on a value of product basis, the most important mining resource for BC as shown in the chart below, with data taken from 2011. Total product value from BC mining in 2011 came to about $8.6 billion. Coal production comes from two main areas of BC - the East Kootenays and Northeast BC with the largest resource located in the Northeast (800 million tonnes versus 560 million tonnes).

Figure B2 – Product Value from BC Mining

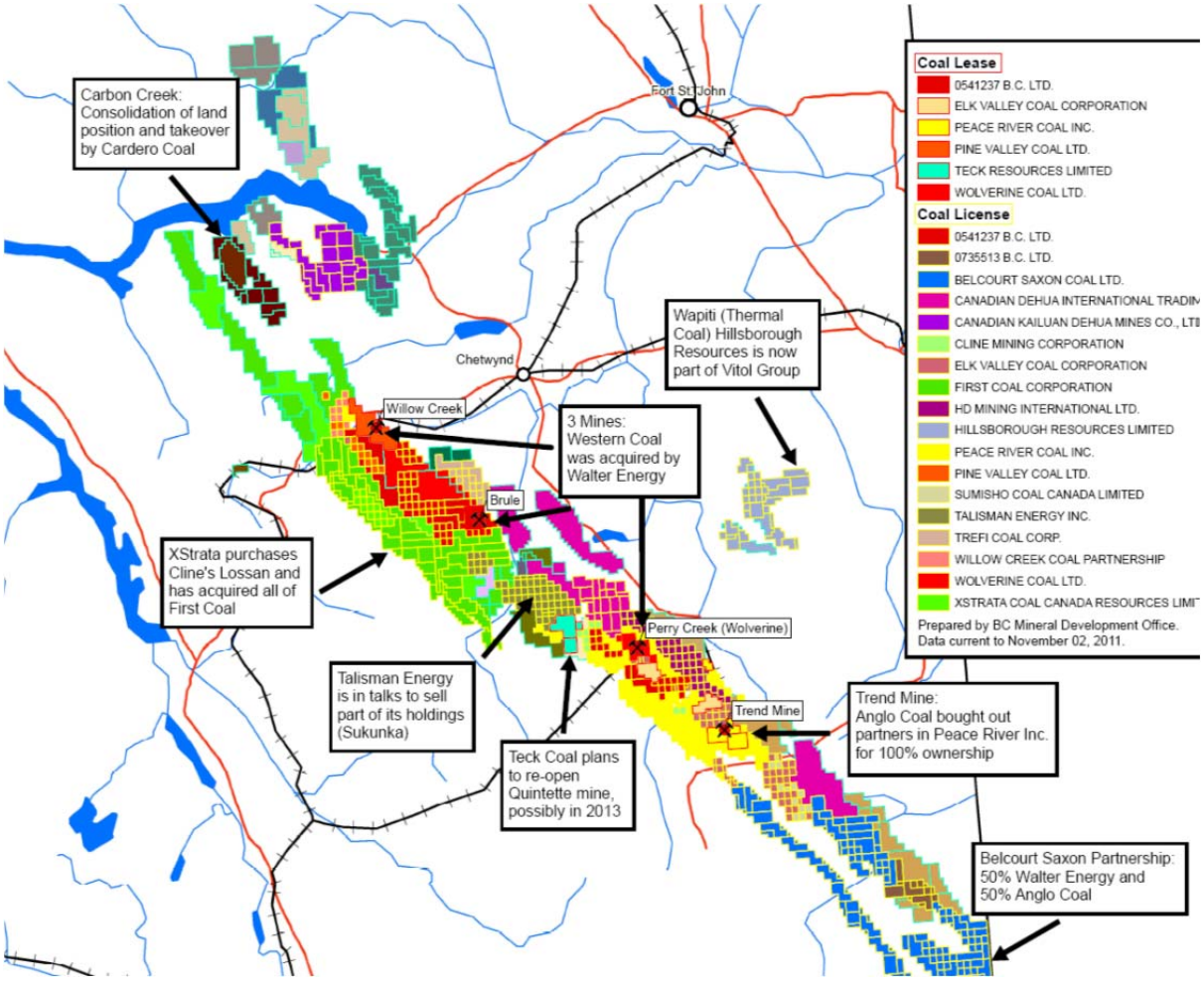


Source:*http://www.amebc.ca/documents/roundup/2012/Technicalpercent20Sessions/Presentations/MONpercent20BCpercent20Minespercent20Developmentpercent20andpercent20Explorationpercent202011.pdf*

In northeastern BC, coal resources lie predominantly in the southern portion of the region with several active mines – Willow Creek, Brule, Perry Creek (Wolverine) and the Trend Mine. Some of the more recent takeovers and sales in the region are depicted on the map below (same reference as the chart above). It is probable that activity in the region will continue at the current levels or even increase as the global economies slowly repair the damage due to the recession of 2008-2010. Much of the coal produced is shipped to the west coast terminals via rail and from there to Asian markets.

Employment opportunities in the region should be maintained or increase at levels that will augment the already-forecast shortfalls due to a greying workforce. It is also likely that employers will be forced to seek qualified personnel beyond the region itself and, likely, outside of the province.

Figure B3 – Map of Coal Resources



B4 > Oil and Gas

Some basic information on the oil and gas sector is provided below for information.

The sedimentary basins that host natural gas and oil in Alberta extend into the northeastern corner of BC and the oil and gas industries have explored for, and developed, some of the fields that lie within BC in those basins. While less prolific then Alberta's, BC's production is important to the province, with revenues in excess of $1 billion per year.

Established hydrocarbon reserves continue to increase, with unconventional natural gas reserves in particular signifying a large potential and high levels of activity in the coming years. Currently, natural gas production is at 1 trillion cubic feet (Tcf) per year, while the potential of unconventional plays in northeastern B.C. could be as high as 1,150 to 1,650 Tcf.

The natural gas and petroleum sector is also the province's biggest revenue earner at $1.35 billion in fiscal year 2009/10 alone, accounting for over 50 percent of B.C.'s total resource revenue. Additionally, the industry employs thousands of British Columbians at some of the highest wages in the province.

Figure B4 – Location of Oil and Gas Hosting Sedimentary Basins

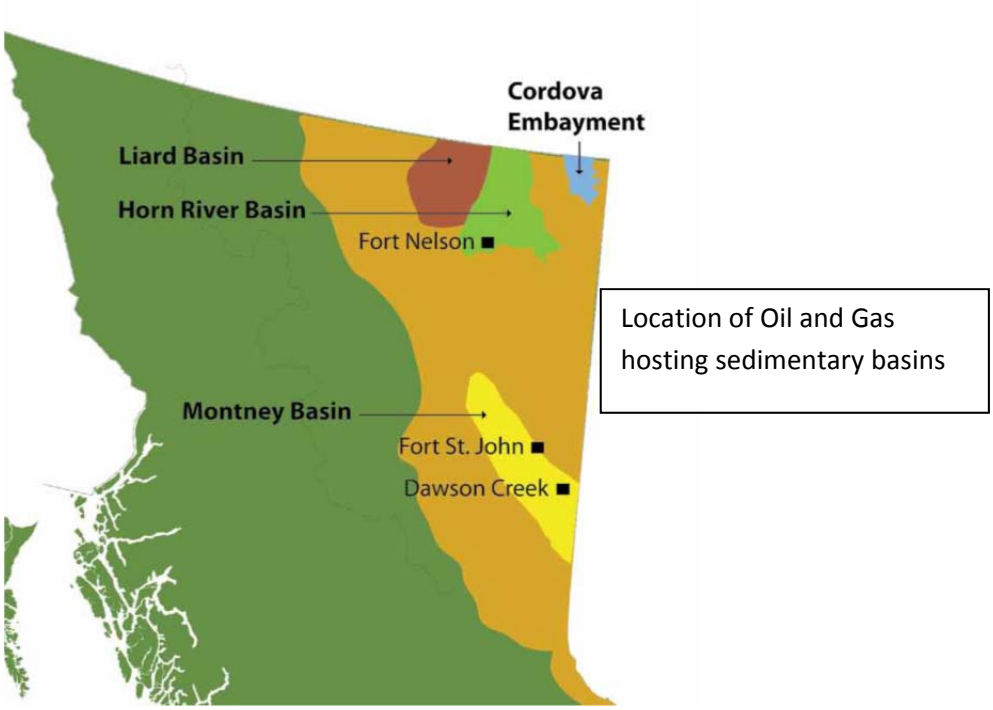
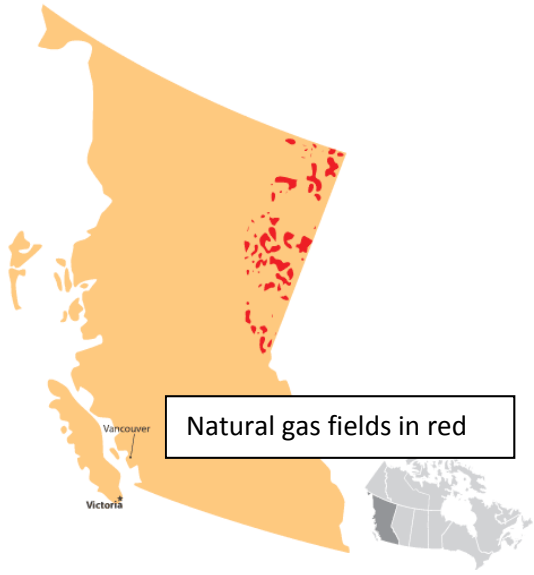
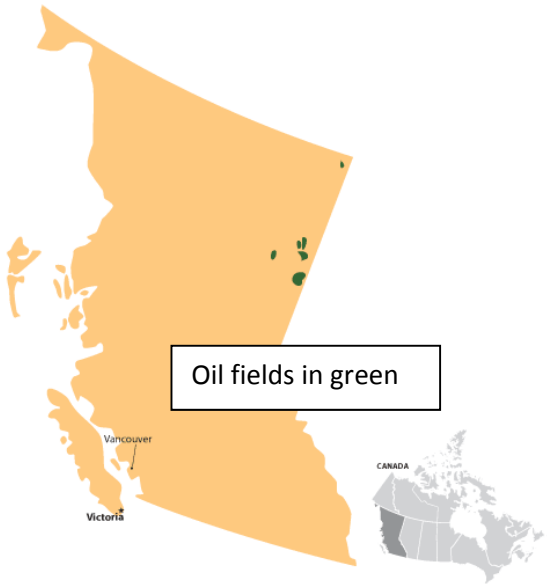


Figure B5 – Location of Oil and Gas Fields





Over the last five to eight years, the oil and gas industries have been revolutionized by the rapidly evolving technologies of "fracturing" or "fracking". The term "unconventional" reserves refer to the hither-to uneconomic sources of gas and oil that have become economically viable with fracking techniques. These resources are typically found in shale basins and their development has increased the scope for oil and gas production in northeastern BC significantly. It is difficult at this time to accurately forecast the impact of the unconventional sources on employment requirements, but it will certainly increase prior forecasts.

B5 > Summary

Limited base metals and precious metals exploration and pre-development take place in Northeast BC, as well as some industrial minerals activity. In general, however, energy projects dominate the resource sector.

In terms of economic impact, mineral exploration activity accounts for a significant amount of local expenditure. The following two charts using BC Ministry of Energy and Mines data illustrate this point:

Figure B6 – Northeast British Columbia: Mineral Exploration Projects

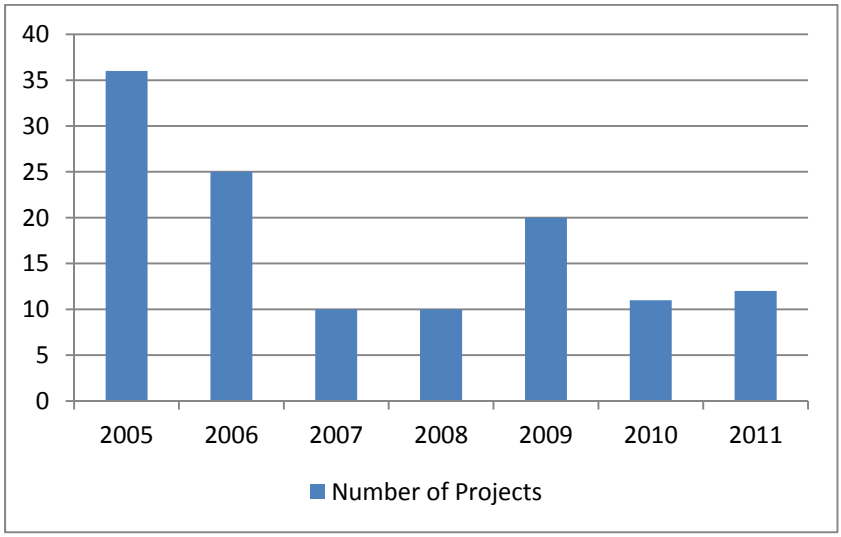
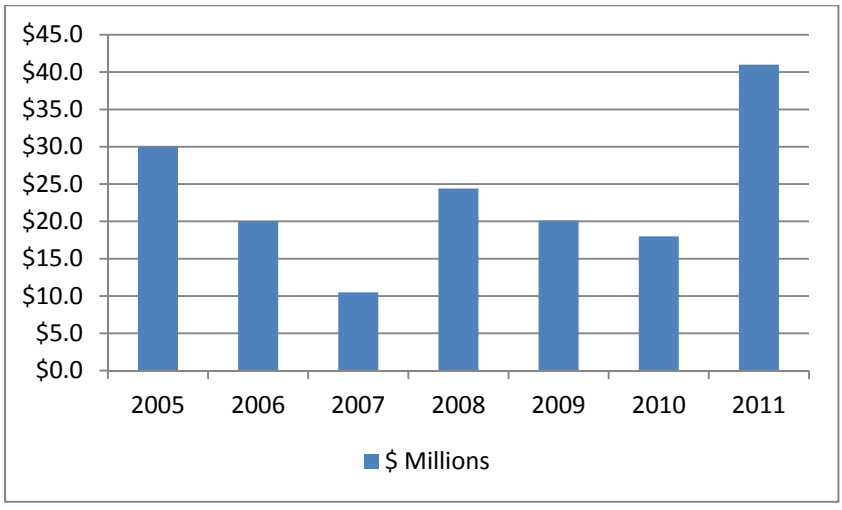


Figure B7 – Northeast Expenditures on Exploration 2005-2011



The Ministry data provides no breakdown to differentiate between energy-related expenditures and "hard-rock" related expenditures. Given the relative degree of activity, a guesstimate would suggest about 90 percent of the projects are energy related, with the remaining 10 percent being hard-rock related expenditures.

In terms of employment requirements, the bulk of the jobs needed in support of these resource industries would be predominantly within the energy sector. The report of the BC Mining Task Force (2012)[31] makes projections on the jobs required for the mining industry in BC to 2020. Validating their projections would mean first understanding the assumptions on which their projections are made, information unavailable in the report. Some companies may reopen coal mines around Tumbler Ridge, expand operations around Chetwynd and HD Mining International also plans to open a new mine using up to 200 temporary foreign workers. Whether these projects all come to fruition and so affect the demand for labour, remains to be seen.

[31] British Columbia Hiring Requirements and Available Talent Forecasts Exploration, Mining, and Stone, Sands and Gravel, September 2012.

B6 > References

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